CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2003-0073

NPDES NO. CA 0004847

WASTE DISCHARGE REQUIREMENTS
FOR
GAYLORD CONTAINER CORPORATION
ANTIOCH PAPER AND PULP MILL
CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

BACKGROUND

1. Gaylord Container Corporation (hereafter Gaylord or Discharger) submitted a Report of Waste Discharge, dated 19 August 2002, and applied for a permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the Antioch Paper Pulp and Mill's existing electricity generating facility (power plant). Supplemental information to complete filing of the application included: 1) 1992 Hydrologic study for the development of Gaylord water supply wells (2 March 1992), 2) biocides and boiler water chemicals for 2001 (6 November 2001), 3) Priority Pollutants analyses of the receiving water and wells (3 December 2001), 4) additional Priority Pollutants analyses of the receiving water (February thru September 2002), 5) low volume wastewater streams (reverse osmosis concentrate) analyses (3 December 2002), and 6) amendment to RWD indicating that low volume waste streams will be contained and segregated and not discharged to surface water (21 February 2003) under this Order.

2. The discharge is presently governed by Waste Discharge Requirements Order No. 97-027, adopted by the Regional Board on 28 February 1997. The Discharger owned and operated a paper mill located in the SE ¼ of Section 17, T2N, R2E, MDB&M, as shown on **Attachment A**, a part of this Order. The existing Order was adopted to discharge treated industrial wastewater combined with once through non-contact cooling water from the facilities to the San Joaquin River, a water of the United States, at point, latitude 38^{o} 00' 44", longitude 121^{o} 46' 03" (outfall 002), but on 20 September 2002, the Mill permanently ceased all papermaking activities and related discharges from the wastewater treatment plant. However, Gaylord will continue to operate its power plant and continue to discharge to the San Joaquin River (outfall 002) non-contact one pass-through cooling water. All other related wastewater (boiler blowdown, reverse osmosis concentrate and other low volume wastestreams) from operation of its power plant will be contained and properly disposed. Stormwater discharges will be regulated by the general industrial stormwater permit adopted by the State Water Resources Control Board Order No. 97-03-DWQ (NPDES General Permit No. CAS000001).

3. Gaylord Container Corporation used to discharge wastewater to the San Joaquin River through its processing facility. The facility used recycled fiber as raw materials, and prior to the

shutdown, produced on a monthly average approximately 1,200 tons per day of Gaylord's Encorliner, which was used throughout the country in the production of a wide variety of corrugated containers. Normal machine operations called for the production of 24 hours a day, 7 days a week. Since the paper making process required so much steam and electrical energy, Gaylord's Antioch Paper and Pulp Mill operated its own power plant. Electrical power is generated by two turbines, one fired by natural gas, the other driven by steam. Exhaust heat from the Gas turbine is boosted to 1200-1400 ^{0}F by natural gas burners and used to make steam. In the past, the steam was used in the paper making process, however, since the shutdown, Gaylord has no longer needed to produce steam. All generated electricity is sold to an energy supplier that in the past has been Pacific Gas and Electric. Water supply for the power plant consists of water drawn from the San Joaquin River and water bought from Contra Costa Water District from the Contra Costa Canal that would have other wise entered the San Joaquin River before it was diverted.

4. The wastewater from the power plant consists of non-contact turbine condenser cooling water, boiler blowdown water, and reverse osmosis concentrate as shown on **Attachment B**. None of this water receives any treatment. However, the discharge to the San Joaquin River will constitute only non-contact turbine condenser cooling water. All other wastewater will be contained and properly disposed to off-site facilities, and it may also be evaporated and concentrated on site before shipment to an off-site disposal facility. The discharge specifications for the Power Plant are as follows:

Maximum Discharge Flow	15.0 million gallons per day (mgd)
Average Temperature	93^{0}F summer; 72^{0}F winter (year 2000)
Highest Temperature	100^{0}F summer; 82^{0}F winter (year 2000)

These following effluent concentrations are the maximum concentrations reported of the water supply (San Joaquin River).

Constituent	Concentration
Electrical Conductivity @ 25°C	9770[1] µmhos/cm
TDS	1500[2] mg/l
Nitrogen Ammonia	0.26[2] mg/l
pH	(6.5 – 8.1)[1] pH units
Nitrate as (N)	0.62[1] mg/l
Aluminum (total)	1330[2] µg/l
Iron (total)	2400[2] µg/l
Manganese (total)	59[2] µg/l
Chloride	700[2] mg/l
Sulfate	110[2] mg/l
Copper (total)	6.2[1] µg/l
Lead (total)	1.21[1] µg/l
Mercury (total)	0.0265[2] µg/l

Constituent	Concentration
Selenium (total)	10.8[2] µg/l
Zinc (total)	25[1] µg/l
Cyanide	23[2] µg/l

[1] Used SJ River 1998-2002 data.
[2] Used SJ River results from 2002 data only.

5. The Regional Board has considered the information regarding the facility and the regulatory basis for these requirements in the attached Information Sheet. The Information Sheet, Monitoring and Reporting Program No. R5-2003-0073, and attachments A through F are part of this Order.

6. The U.S. Environmental Protection Agency (USEPA) and the Regional Board have classified this discharge as a major discharge.

7. The Regional Board adopted a Water Quality Control Plan; Fourth Edition, for the Sacramento and San Joaquin River Basins (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters of the Basin. Requirements in this order implement the Basin Plan.

8. USEPA adopted the National Toxics Rule (NTR) on 5 February 1993 and the California Toxics Rule (CTR) on 18 May 2000. These Rules contain water quality standards applicable to this discharge. The State Water Resources Control Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (known as the State Implementation Policy-SIP), which contains guidance on implementation of the NTR, CTR, and other priority toxic pollutants

RECEIVING WATER BENEFICIAL USES

9. The beneficial uses of the Sacramento–San Joaquin River Delta (which includes the San Joaquin River section at the point of discharge), as defined in the Basin Plan, include: municipal and domestic water supply (MUN), irrigation and stock watering (AGR), industry process (PRO) and service supply (IND), contact (REC-1) and non-contact (REC-2) water recreation, freshwater habitat for both warm (WARM) and cold water species (COLD), serves as migration (MIGR) waters for three warm water species (striped bass, sturgeon, and shad) and two cold freshwater species (salmon and steelhead), allows for spawning of three warm water species (striped bass, sturgeon, and shad) (SPWN), serves as wildlife habitat (WILD), and allows for navigation (NAV).

EFFLUENT LIMITATIONS AND REASONABLE POTENTIAL

10. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), 307 (Toxic and Pretreatment Effluent Standards), and 316 (Thermal Discharges) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge. Effluent limitation guidelines for Steam Electric Power Generating Point Source Category are contained in 40 CFR 423. However, since the proposed discharge consists only of non-contact cooling water, no technology based effluent limitations are applicable and all effluent limitations contained in this Order are based on the Basin Plan, other State plans and policies, and Best Professional Judgment. The requirements of Part 423.15 (j)(1) with regards to the 126 priority pollutants contained in chemicals added for cooling tower maintenance (except for chromium and zinc) are not applicable to this discharge, because the discharge does not include cooling tower blowdown but rather once through non-contact cooling water.

11. Clean Water Act Section 301 (b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include Regional Board Basin Plan beneficial uses and narrative and numeric water quality objectives, SWRCB-adopted standards, and federal standards, including the CTR and NTR. The Basin Plan contains numeric water quality objectives and contains a narrative toxicity objective that states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." (Basin Plan at III-8.00.) For determining whether there is reasonable potential for an excursion above a narrative objective, the regulations prescribe three discrete methods (40 CFR 122.44 (d)(vi)). The Regional Board often relies on the second method because the USEPA's water quality criteria have been developed using methodologies that are subject to public review, as are the individual recommended criteria guidance documents. USEPA's ambient water quality criteria are used as means of supplementing the integrated approach to toxics control, and in some cases deriving numeric limitations to protect receiving waters from toxicity as required in the Basin Plan's narrative toxicity objective. In addition, when determining effluent limitations for a discharger, the dilution of the effluent in the receiving water may be considered where areas of dilution are defined. However, when a receiving water is impaired by a particular pollutant, no pollutant assimilative capacity is available in spite of the available hydraulic dilution. In these instances, and depending upon the nature of the pollutant, effluent limitations may be set equal to or less than the applicable water quality standard which are applied at the point of discharge to assure the discharge will not cause or contribute to the receiving stream exceedance of water quality standards established to protect the beneficial uses.

    Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs the Regional Board finds that the discharge does have a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for **aluminum, chloride, copper, cyanide, iron, lead, manganese, salinity (EC/TDS), and selenium**. Effluent limitations for these constituents are included in this Order. In addition, this Order contains provisions that:

a. Require the Discharger to conduct a study to provide information as to whether the levels of priority pollutants, including CTR and NTR constituents, constituents for which drinking water maximum contaminant levels (MCLs) are prescribed in the California Code of Regulations, or other pollutants in the discharge cause or contribute to an in-stream excursion above a water quality standard, including Basin Plan numeric or narrative objectives;

b. If the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard, requires the Discharger to submit information to calculate effluent limitations for those constituents; and

c. Allows the Regional Board to reopen this Order and include effluent limitations for those constituents.

On 10 September 2001 the Executive Officer issued a letter, in conformance with State Water Code, Section 13267, requiring the Discharger to prepare a technical report assessing effluent and receiving water quality. A copy of that letter, including its attachments is incorporated into this Order as **Attachments D through D-4**. The study/provision contained in this Order is intended to be consistent with the requirements of the technical report (**Attachment D**) in requiring sampling for NTR, CTR, and additional constituents to determine if the discharge has a reasonable potential to cause or contribute to water quality impacts. The technical report requirements contained in Attachment D list specific constituents, detection levels, acceptable time frames and report requirements. **Provision F3** contained in this Order is intended to be consistent with the requirements of the technical report request.

12. In May 1992, Gaylord Container Corporation submitted a technical report defining the 30-day average hydrologic dilution ratio in the San Joaquin River, taking into account the tidal and seasonal dynamics of the area, within a 300-foot radius of the outfall (point 002). The outfall terminates in a 117 foot-long diffuser section starting at a point approximately 135 feet from the shoreline of the San Joaquin River. The study resulted in the discharge having a final effluent dilution of 109:1 for low density and 121:1 for high density.

13. Section 1.3 of the SIP requires the Regional Board to follow specific procedures for each priority pollutant with an applicable criterion or objective to determine if a water quality based effluent limitation is required. In evaluating compliance with the CTR and SIP for this new Order, Regional Board staff in addition to utilizing ambient background data collected by the Discharger in 2002, also utilized historical ambient surface water quality data from the San Francisco Regional Monitoring Program (SFRMP) conducted under the oversight of the San Francisco Bay Regional Water Quality Control Board. Monitoring data evaluated came from SFRMP Station BG30, located approximately 3 miles downstream of Gaylord's outfall 002 in the San Joaquin River, at latitude 38^{o} 01.40' and longitude 121^{o} 48.45', at a depth of 7 meters, and 0.1 nautical miles east of channel marker "8". **Attachment C** summarizes receiving water data (historical and most recent 2002), calculated maximum effluent concentrations (MECs)

and includes aquatic life and human health criteria and Basin Plan objectives for each priority pollutant and other constituents.

14. According to Section 1.4.4 of the SIP, the Regional Board can allow for Intake Water Credits on a pollutant by pollutant and discharge by discharge basis when establishing water quality based effluent limitations, provided certain conditions are met. The Discharger clearly meets such conditions for the intake water from the San Joaquin River. The Contra Costa Canal water is also being considered for intake credits because had it not been diverted it would otherwise have entered the San Joaquin River. In addition, when Contra Costa canal water is used instead of the San Joaquin River it is because it is of better quality than the San Joaquin River intake. Therefore in establishing effluent limitations, the Discharger is allowed to discharge a mass and concentration of the intake water pollutant that is no greater than the mass and concentration simultaneously found in the facility's intake water. However, no intake credit can be allowed from a groundwater supply source because this source does not qualify for intake credits. Furthermore, no side stream discharges are allowed, such as boiler blowdown or reverse osmosis concentrate, since these additions would add concentration of constituents to the discharge.

15. In May 1995, the State Water Resources Control Board (SWRCB) adopted a revised Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan). This plan establishes water quality control measures which contribute to the protection of beneficial uses in the Bay-Delta Estuary. The Bay-Delta Plan consists of: (1) beneficial uses to be protected; (2) water quality objectives for the reasonable protection of beneficial uses; and (3) a program of implementation for achieving the water quality objectives. This plan supplements other water quality control plans adopted by the SWRCB and regional water quality control boards (RWQCBs), and State policies for water quality control adopted by the SWRCB, relevant to the Bay-Delta Estuary watershed. The water quality objectives in the 1995 Bay-Delta Plan apply to the waters of the San Francisco Bay system waters within the legal boundary of the Sacramento-San Joaquin Delta, as specified by the objectives. Tables 1, 2, and 3 in the plan contain the water quality objectives for the protection of municipal and industrial, agricultural, and fish and wildlife beneficial uses, respectively, and have been incorporated into the Basin Plan as Tables III-5 A, B, and C.

THERMAL RESOLUTION

16. Thermal water quality objectives for the San Joaquin River are outlined in the Water Quality Control Plan for Control of Temperature in Coastal Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan), last amended by the SWRCB on 18 September 1975. Based on the water body definitions in the plan, the San Joaquin River near Gaylord's discharge point is included as an estuary (waters extending from a bay or the open ocean to the upstream limit of tidal action).

17. Section 316(a) of the CWA and 40 CFR Section 125.73 provide that thermal discharge effluent limitations or standards established in permits may be less stringent than those required by

applicable standards and limitations if the discharger demonstrates to the satisfaction of the permitting authority that such effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish, and wildlife in and on the body of water into which the discharge is made. This demonstration must show that the alternative effluent limitation desired by the discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of this balanced indigenous community of shellfish, fish and wildlife.

18. The Thermal Plan states that:

"Regional Boards may, in accordance with Section 316(a) of the Federal Water Pollution Control Act of 1972, and subsequent federal regulations including 40 CFR 122, grant an exception to Specific Water Quality Objectives in this Plan. Prior to becoming effective, such exceptions and alternative less stringent requirements must receive the concurrence of the State Board."

19. In accordance with provisions of the Thermal Plan, the previous owner/operator, Crown Zellerbach Corporation requested by letter, dated 14 January 1975, that the Antioch Paper and Pulp Mill be granted a relaxation of specific water quality objectives 5.A.(1)a and 5.A.(2) of the Thermal Plan. A study in support of its request pursuant to 40 CFR 122 was submitted to the Regional Board. The study supplied biological and engineering information. On 22 October 1976 the Regional Board, in Resolution No. 76-218 granted a relaxation to specific water quality objectives 5.A.(1)a and 5.A.(2), thereby allowing a maximum effluent temperature differential limitation of 45 ^{o}F (25^{o}C) during November through May; 35 ^{o}F (19^{o}C) during June and October; and 30^{o}F (16.7^{o}C) during July, August, and September. In addition, the maximum effluent temperature was increased from 86^{o}F (30^{o}C) to 105 ^{o}F (40.5^{o}C). The State Board and USEPA subsequently concurred with these revised limitations. At this time as in previous order No. 97-027, and since the main contributor of the elevated temperature discharge continues to be the non-contact cooling water, the Regional Board finds that Thermal Plan water quality objectives 5.A.(1)a and 5.A.(2) are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish, and wildlife in and on the body of water into which the discharge is made. This Order includes alternative effluent and receiving water limitations less stringent than the Thermal Plan, and on 24/25 April 2003, the Regional Board adopted Resolution No. R5-2003-0069 granting a continued exception to the Thermal Plan. The State Board and USEPA will have an opportunity to review this continued exception to the thermal plan and may accept or object to the Regional Board's Resolution. The Resolution incorporated the same maximum effluent limitations as in the original Resolution No. 76-218.

CHRONIC TOXICITY

20. The Discharger conducted 7-day chronic toxicity tests with *Ceriodaphnia dubia* and the larval *Pimephales promelas* in 1990 (EA Engineering/Aqua Terra Technologies) and 1992 (MEC Analytical Systems, Inc.) to comply with a previous permit requirement. The submitted

reports indicated that the significant effect observed on the survival of *Ceriodaphnia dubia* was due to salinity in the ambient water. However, the 1992 report also indicated that for the test series using effluent diluted with control water, the effect on reproduction in *Ceriodaphnia dubia* was probably due to a toxicant other than salinity, and that there appears to be other toxicants in both effluent and ambient water that can affect these organisms. Since the previous toxicity tests were conducted using a combined effluent of treated wastewater from the paper making processes and non-contact cooling water, additional testing will need to be conducted to evaluate toxicity solely from the non-contact cooling water. USEPA has recently published newly promulgated Toxicity test methods with an effective date of 19 December 2002. Therefore, the Discharger will be required in the Monitoring and Reporting Program to routinely perform three species toxicity testing on the effluent to determine if their effluent causes toxicity. The three species chronic toxicity test will be conducted using the species *Ceriodaphnia dubia*, *Pimephales promelas*, and *Selenastrum capricornutum* (4th edition EPA/821-R-02-013). However, if the levels of salinity in the effluent are greater than 5ppt or Electrical Conductivity is greater than 8750 µmhos/cm, or when TDS levels are greater than 5,600 mg/l, then the discharger may use a combination of estuarine and freshwater species, namely *Mysidopsis bahia* (3rd edition EPA/821-R-02-014), *Pimephales promelas* and *Selenastrum capricornutum* (4th edition EPA/821-R-02-013). The freshwater species may also be substituted if the source of any toxicity is determined, by a TIE, to be salinity related.

NONPRIORITY POLLUTANTS

21. **Aluminum** concentrations in the effluent were based on the maximum San Joaquin River concentrations. Aluminum was detected in the San Joaquin River with a maximum concentration of 1330 µg/l on a sample taken in May 2002. The Primary and Secondary MCLs for aluminum are 1000 µg/l and 200 µg/l respectively. USEPA's ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum expressed as total recoverable are 750 µg/l (1-hour average, acute) and 87 µg/l (4-day average, chronic). This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts and USEPA's criteria for prevention of acute and chronic toxicity are numerical criteria, which are protective of the Basin Plan's narrative toxicity objective. Since both the receiving water and the effluent exceed USEPA's ambient water quality criteria of chronic toxicity, and the secondary MCL, **no dilution** can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above water quality criteria for aluminum. Therefore, this Order includes an effluent limitation for Aluminum of 87 µg/l as a 4-day average and 750 µg/l as the daily maximum. However, at times when the influent San Joaquin River water concentration of aluminum is above the USEPA's ambient water quality criteria, then these requirements establish the effluent limitation equal to the detected concentration and mass (plus 10% to account for timing, sampling, and analysis variability) and mass of aluminum in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of aluminum, concurrent monitoring of the intake receiving water (San Joaquin River water and if used Contra Costa canal water) and effluent will be required. In addition, if the Discharger believes the toxicity aluminum criteria is not applicable for the San Joaquin River, they can request the

development of site specific criteria based on a water effect ratio or develop a translator that would take into account less toxic forms of aluminum. In either case, the Discharger will need to submit all the necessary technical information in order to support such a change.

22. **Electrical Conductivity (EC) and Total Dissolved Solids (TDS)** concentrations in the effluent were based on the maximum San Joaquin River concentrations. Data from SFRMP Station BG30 show that EC levels in the San Joaquin River ranged from 110-9770 µmhos/cm between 1993 and 1999. Additional data from samples taken by the discharger between 1998 and 2002 show that TDS concentrations in the San Joaquin River ranged between 140 and 1500 mg/l. Although the Sacramento–San Joaquin Delta has been listed as an impaired waterbody pursuant to Section 303(d) of the Clean Water Act due to EC, the section impaired by EC only applies to 16,000 acres out of a total of 48,000 acres, known as the South Delta. The South Delta does not include the section of the San Joaquin (SJ) River in the vicinity of the discharge. For EC (TDS), the secondary MCL recommended range is 900 µmhos/cm (500 mg/l), the upper range is 1600 µmhos/cm (1000 mg/l) and the short term range is 2200 µmhos/cm (1500 mg/l). The Agricultural Water Quality Goal is 700 µmhos/cm for EC and 450 mg/l for TDS. However more restrictive water quality objectives for the protection of agricultural uses are included in Table 2 of the 1995 Bay Delta Plan (incorporated as table III-5B in the Basin Plan), the most restrictive being the maximum 14-day running average of mean daily for EC in the San Joaquin River at Jersey Point set at 450 µmhos/cm between 1 April and 20 June. The SJ River in the Antioch area is a mixture of freshwater and saltwater at various times of the year. This area of the River is brackish due to its proximity with the San Francisco Bay, tidal influence, and during most of the year a lack of freshwater outflow to mitigate saltwater intrusion. Since at times both the receiving water and the effluent exceed the Basin Plan objective for EC and the agricultural water quality goal for EC and TDS, **no dilution** can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above a water quality criteria for EC and TDS. Therefore, this Order includes an effluent limitation for EC of 450 µmhos/cm between April and June and 700 µmhos/cm between July and March as monthly averages and for TDS an effluent limitation of 450 mg/l also as a monthly average. However, at those times when the San Joaquin River is primarily saltwater, discharges of EC and TDS in concentrations equal to the concentration in the San Joaquin River should not cause a significant water quality impact to native species and beneficial uses. Furthermore, at times when the influent San Joaquin River water concentration of EC and TDS exceed the effluent limitations, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10% to account for timing, sampling, and analysis variability) of EC and TDS in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of EC and TDS, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

23. **Chloride** concentrations in the effluent were based on the maximum San Joaquin River concentrations. There were no data from station BG30 on chlorides. Samples taken by the

discharger between 1998 and 2002 show that chloride concentrations in the San Joaquin River ranged from 16-700 mg/l. The secondary MCL recommended range for chloride is 250 mg/l, the upper range is 500 mg/l, and the short term range is 600 mg/l. USEPA's National Ambient Water Quality Criteria for chloride for the Protection of Freshwater Aquatic Life is 230 mg/l, as a 4-day average, and 860 mg/l as a 1-hour average. The 1995 Bay Delta Plan Table 1 (incorporated as table III-5A in the Basin Plan) includes a water quality objective for chloride in the San Joaquin River at the Antioch Waterworks intake of 150 mg/l. The Agricultural Water Quality goal for chloride is 106 mg/l, but because there is a site-specific Basin Plan objective of 150 mg/l, this becomes the applicable standard. Since both the receiving water and the effluent exceed the site specific Basin Plan objective, the secondary MCL, and the USEPA ambient water quality chronic criterion, **no dilution** can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above water quality criteria for chloride. Therefore, this Order includes an effluent limitation for chloride of 150 mg/l as a monthly average and 860 mg/l as a daily maximum. However, at those times when the influent San Joaquin River water concentration of chloride exceeds the effluent limitations, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10% to account for timing, sampling, and analysis variability) of chloride in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of chloride, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

24. **Iron** concentrations in the effluent were based on the maximum San Joaquin River concentrations. Background concentrations in the San Joaquin River ranged from 440-2400 µg/l based on results from samples collected between 1998 and 2002. The Basin Plan includes a site-specific (San Joaquin River within the Delta) receiving water objective for iron of 300 µg/l. The secondary MCL for iron is also 300 µg/l Since both the receiving water and the effluent exceed the site specific Basin Plan objective and secondary MCL, **no dilution** can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above water quality criteria for iron. Therefore, this Order includes an effluent limitation for iron of 300 µg/l as a monthly average. However, at those times when the influent San Joaquin River water concentration of iron exceeds the effluent limitation, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10 % to account for timing, sampling, and analysis variability) of iron in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of iron, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

25. **Manganese** concentrations in the effluent were based on the maximum San Joaquin River concentrations. It was calculated to be a maximum of 57.3 µg/l based on results from samples collected in 2002. Background concentrations in the San Joaquin River ranged from 14-59 µg/l based on results from samples collected between 1997 and 2002. The Basin Plan includes a site-specific receiving water objective for manganese of 50 µg/l. The secondary MCL for

manganese is also 50 µg/l. Manganese naturally occurs in many waters but can also be introduced by industry. Manganese does not pose a health risk, the secondary MCL is established for the aesthetic quality of the water. Since both the receiving water and the effluent exceed the site specific Basin Plan objective and secondary MCL, **no dilution** can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above water quality criteria for manganese. Therefore, this Order includes an effluent limitation for manganese of 50 µg/l as a monthly average. However, at those times when the influent San Joaquin River water concentration of manganese exceeds the effluent limitation, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10 % to account for timing, sampling, and analysis variability) of manganese in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of manganese, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

PRIORITY POLLUTANTS

26. **Copper** was based on the maximum San Joaquin River concentrations. Background concentrations in the San Joaquin River intake water were non detect (<10 µg/l from annual samples taken between 1998 and 2001. However, samples taken in 2002 showed that background concentration of total copper in the San Joaquin River ranged from 3.2 to 6.2 µg/l. In addition, the maximum background concentration for total copper at the San Joaquin River SFRMP Station BG30 was 5.31 µg/l, while the maximum dissolved concentration was 2.94 µg/l. The Basin Plan includes a site-specific receiving water objective for dissolved copper of 10 µg/l (independent of hardness). The CTR Water Quality Criteria for copper expressed as total concentrations for the protection of freshwater aquatic life for acute and chronic scenarios are 6.3 µg/l and 4.5 µg/l respectively based on the worst case receiving water hardness of 43 mg/l as $CaCO_3$. The CTR Water Quality Criteria for copper expressed as total concentrations (using conversion factor of 0.83) for the protection of saltwater aquatic life for acute and chronic scenarios are 5.8 µg/l and 3.7 µg/l respectively. Based on available data, both the receiving water and the effluent, at times, exceed the CTR water quality criteria for saltwater and freshwater aquatic life. Therefore, **no dilution** can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for both saltwater and freshwater species, saltwater criteria being the most stringent. This Order includes two effluent limitations for copper, one for the protection of saltwater aquatic life, and the other one for the protection of freshwater aquatic life. The effluent limitation for total copper for the protection of saltwater species is set to 2.9 µg/l as a monthly average and 5.8 µg/l as a daily maximum, and is only applicable under saltwater conditions (when EC is greater than 8750 µmhos/cm). The effluent limitation for the protection of freshwater species is hardness dependent as shown in **Attachment E**. To determine compliance with this limitation, the applicable hardness will be that of the receiving water (San Joaquin River intake water). However, at those times when the influent San Joaquin River water concentrations of copper exceed the effluent limitation, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10 % to account for timing, sampling,

and analysis variability) of copper in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of copper, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

27. **Lead** was based on the maximum San Joaquin River concentrations. Background concentrations in the San Joaquin River ranged from 0.2 to 0.7 µg/l from samples collected in 2002. However, data from the San Joaquin River SFRMP Station BG30 showed that the maximum background concentration for total lead was 1.21 µg/l. The CTR Water Quality Criteria for lead expressed as total recoverable concentrations (using conversion factor of 0.914) for the protection of freshwater aquatic life for acute and chronic scenarios are 28 µg/l and 1.1 µg/l respectively based on the worst case receiving water hardness of 43 mg/l as $CaCO_3$. The CTR Water Quality Criteria for lead expressed as total recoverable concentrations (using conversion factor of 0.951) for the protection of saltwater aquatic life for acute and chronic scenarios are 221 µg/l and 8.5 µg/l respectively. Based on available data, both the receiving water and the effluent, at times, exceed the CTR water quality criteria, then an effluent limitation is required and **no dilution** can be granted. Therefore, this Order includes hardness dependent effluent limitations for lead as shown in **Attachment F** based on the CTR criteria for the protection of freshwater aquatic life. To determine compliance with this limitation, the applicable hardness will be that of the receiving water (San Joaquin River intake water). However, at those times when the influent San Joaquin River water concentrations of lead exceed the effluent limitation, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10% to account for timing, sampling, and analysis variability) of lead in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of lead, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

28. **Selenium** was based on the maximum San Joaquin River concentrations. The maximum background concentration for total selenium at the San Joaquin River SFRMP Station BG30 was 0.43 µg/l. However, samples taken in 2002 showed that concentrations of total selenium in the San Joaquin River ranged from 0.5 to 10.8 µg/l. The CTR Water Quality Criteria for selenium expressed as total recoverable concentrations for the protection of freshwater aquatic life for acute and chronic scenarios are 20 µg/l and 5 µg/l respectively. The CTR Water Quality Criteria for selenium expressed as total recoverable concentrations (using conversion factor of 0.998) for the protection of saltwater aquatic life for acute and chronic scenarios are 291 µg/l and 71 µg/l respectively. Based on available data, both the receiving water and the effluent at times exceed the CTR water quality criteria for freshwater aquatic life. Therefore, **no dilution** can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life. This Order includes effluent limitations for selenium, based on the CTR criteria for the protection of freshwater aquatic life of 8.2 µg/l as a daily maximum and 4.1 µg/l as a monthly average. However, at those times when the influent San Joaquin River water concentrations of

selenium exceed the effluent limitation, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10% to account for timing, sampling, and analysis variability) of selenium in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of selenium, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

29. **Cyanide** was based on the maximum San Joaquin River concentrations. Background concentrations for total cyanide in the San Joaquin River ranged from <5 to 23 µg/l from samples collected in 2002. The Basin Plan includes a site-specific receiving water objective for cyanide of 10 µg/l. The CTR Water Quality Criteria for cyanide expressed as total concentrations for the protection of freshwater aquatic life for acute and chronic scenarios are 22 µg/l and 5.2 µg/l respectively. The CTR Water Quality Criteria for cyanide expressed as total concentrations for the protection of saltwater aquatic life for acute and chronic scenarios are 1.0 µg/l and 1.0 µg/l respectively. Based on available data, both the receiving water and the effluent, at times, exceed the CTR water quality criteria for saltwater and freshwater aquatic life. Therefore, **no dilution** can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for both saltwater and freshwater species, saltwater criteria being the most stringent. This Order includes two effluent limitations for cyanide, one for the protection of saltwater aquatic life, and the other one for the protection of freshwater aquatic life. The effluent limitation for total cyanide for the protection of saltwater species is set to 0.5 µg/l as a monthly average and 1.0 µg/l as a daily maximum, and is only applicable under saltwater conditions (when EC is greater than 8750 µmhos/cm). The effluent limitation for total cyanide for the protection of freshwater species is set to 4.2 µg/l as a monthly average and 8.5 µg/l as a daily maximum. However, at those times when the influent San Joaquin River water concentrations of cyanide exceed the effluent limitation, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10% to account for timing, sampling, and analysis variability) of cyanide in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of cyanide, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

30. The Sacramento–San Joaquin Delta has been listed as an impaired waterbody pursuant to Section 303(d) of the Clean Water Act because of: (1) diazinon and chlorpyrifos (organophosphate pesticides), (2) Group A-organochlorine pesticides {aldrin, chlordane, dieldrin, endosulfan (alpha, beta, sulfate), endrin, endrin aldehyde, 4,4'DDT, heptachlor, heptachlor epoxide, hexachlorocyclohexane (alpha, beta, delta and lindane), and toxaphene}, and (3) unknown toxicity. The Basin Plan objectives regarding pesticides include:

a) no individual pesticides shall be present in concentrations that adversely affect beneficial uses,
b) discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affects beneficial uses,
c) total chlorinated hydrocarbon pesticide concentrations shall not be present in the water column at detectable concentrations, and
d) pesticide concentrations shall not exceed those allowable by applicable antidegradation policies.

Organophosphate pesticides, diazinon and chlorpyrifos, are commonly-used insecticides found in many domestic wastewater discharges at concentrations which can cause toxicity in both the effluent and in the receiving water. These pesticides are not expected to be found in industrial discharges. In addition, these pesticides are not "priority pollutants" and so are not part of the analytical methods routinely performed for NPDES discharges. The Discharger will not be required to monitor for diazinon or chlorpyrifos. The Basin Plan's requirement that persistent chlorinated hydrocarbon pesticides shall not be present in the water column in detectable concentrations is the most stringent criterion for the regulation of the Group A-**organochlorine pesticides (OPs)**. Since the effluent constitutes San Joaquin River water having been used as once through cooling water, the Organochlorine pesticides were analyzed in the receiving water on samples taken in 2001 and 2002. The results were non-detect. Although, these constituents are listed under the California 303(d) list as pollutants causing impairment in the Sacramento-San Joaquin Delta, and an effluent limitation for Group A-organochlorine pesticides is required according to the SIP, this Order does not include an effluent limitation for OPs because of the site-specific results of non-detect.

31. **Mercury** was based on the maximum San Joaquin River concentrations analyzed using a "clean technique" USEPA Method 1631. Background concentrations of Mercury in the San Joaquin River ranged from 0.0032 µg/l to 0.0265 µg/l from samples collected in 2001 and 2002. Mercury was also detected in the Contra Costa Canal water with a concentration of 0.00258 µg/l from samples taken in 2001. The current USEPA's ambient water quality criterion (expressed as dissolved concentrations) for continuous concentration of mercury is 0.77 µg/l (4-day average, chronic criteria), and the CTR (expressed as total recoverable) concentration for the human health protection for consumption of water and aquatic organisms is 0.050 µg/l. Mercury is listed under the California 303(d) list as a pollutant causing impairment in the Sacramento-San Joaquin Delta. This listing is based partly on elevated levels of mercury in fish tissue. Because the Sacramento-San Joaquin Delta has been listed as an impaired water body for mercury based on fish tissue impairment, the discharge must not cause or contribute to increased mercury levels in fish tissue. However, because Gaylord's intake water is also its receiving water, and there are no other sources of mercury introduced by the discharger, the concentrations and mass loading of mercury in the effluent are the same concentrations and mass loading in the receiving water and therefore this Order does not include an effluent limitation for mercury.

STORMWATER

32. The State Water Resources Control Board adopted Order No. 97-03-DWQ (NPDES General Permit No. CAS000001), *Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities*, on 17 April 1997. The Report of Waste Discharge states that all storm water runoff is collected onsite and discharged to the San Joaquin River. Discharges of stormwater are covered under the Storm Water General Permit. In addition, Gaylord has implemented a storm water pollution prevention plan and sampling/monitoring program for the facility.

GENERAL

33. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. This Order does not provide for an increase in the permitted volume and mass of pollutants discharged for which effluent limits were set in prior WDRs (Order No. 97-027). Furthermore, this Order contains effluent limitations and other requirements to assure that the discharge will not unreasonably affect the beneficial uses of the receiving waters and will not exceed applicable water quality objectives. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. In addition, the discharger is required to attain technology-based standards established in the federal Clean Water Act. The Discharge mainly constitutes thermally increased San Joaquin River water being discharged back to the San Joaquin River. Allowing the thermally increased discharge allows Gaylord to provide a service necessary to the production of electricity, and is consistent with the maximum benefit to the people of the State by providing social and economic benefit to the Discharge and the communities in the Eastern Contra Costa County.

34. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.), in accordance with Section 13389 of the California Water Code.

35. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

36. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

37. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect upon the date of hearing, provided EPA has no objections.

IT IS HEREBY ORDERED that Order No. 97-027 is rescinded and that Gaylord Container Corporation, Antioch Paper and Pulp Mill, its agents, successors and assigns, in order to meet the

provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions:

1. Discharge of wastewater at a location or in a manner different from that described in Finding No. 2 is prohibited. And other than the once through cooling water, the direct discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. The bypass or overflow of untreated or partially treated waste, including domestic waste, or direct discharge of storm water to surface waters or surface water drainage courses is prohibited, except as allowed by the attached Standard Provisions and Reporting Requirements A.13.

3. The addition of materials that have metals as an active ingredient including chemicals added to inhibit corrosion, scale, or algal formation in the non-contact turbine condenser is prohibited.

4. Neither the discharge nor its treatment shall create a condition of pollution or nuisance as defined in Section 13050 of the California Water Code.

B. Effluent Limitations:

1. The Discharger's effluent of cooling water discharge to Outfall 002 shall not exceed the following limits:

Constituents	Units	Monthly Average	4-Day Average	Daily Maximum
Aluminum[5]	µg/l		87	750
	lbs/day[3]		10.9	93.8
Chloride[5]	mg/l	150		860
	lbs/day[3]	18775		107655
Constituents	**Units**	**Monthly Average**	**4-Day Average**	**Daily Maximum**
Copper (saltwater)[2,5]	µg/l	2.9		5.8
	lbs/day[3]	0.363		0.726
Copper (freshwater)[5]	µg/l	Att E [4]		Att E [4]
	lbs/day[3]			
Cyanide (saltwater)[2,5]	µg/l	0.5		1.0
	lbs/day[3]	0.06		0.12
Cyanide (freshwater)[5]	µg/l	4.2		8.5

	lbs/day[3]	0.53	1.06
Electrical Conductivity[5]	µmhos/cm	450[1]/700	
TDS[5]	mg/l	450	
	lbs/day	56325	
Iron[5]	µg/l	300	
	lbs/day	37.6	
Lead[5]	µg/l	Att F[4]	Att F[4]
	lbs/day[3]		
Manganese[5]	µg/l	50	
	lbs/day	6.26	
Selenium[5]	µg/l	4.1	8.2
	lbs/day[3]	0.51	1.02

[1] This 450 µmhos/cm EC limit is only applicable between 1 April and 20 June.

[2] This limit only applicable when EC levels in the receiving water are above 8750 µmhos/cm.

[3] Based on a monthly average combined flow of 15 mgd.

[4] Using the value, in µg/l, determined from attachments E, and F, calculate the lbs per day limit by using the formula: 1/1000 x µg/l x 8.345 x 15 mgd = lbs/day.

[5] At times when intake SJ River water concentrations are above these limits, then the effluent limitation for this constituent shall become the detected mass and concentration found in the intake water (SJ River and Contra Costa Canal) plus a statistical error bar of 10% to account for sampling and analytical variations. To determine compliance with this effluent limitation concurrent monitoring of the intake (SJ River and Contra Costa Canal) water and effluent shall be conducted.

2. The Discharger's effluent shall not have a pH less than 6.5 nor greater than 8.5.

3. The 30-day average daily dry weather flow from the Discharger's effluent shall not exceed 15.0 million gallons.

4. Survival of aquatic organism in 96-hour bioassays of undiluted waste shall be not less than:

   Minimum for any one bioassay----------70%
   Median for any three or more consecutive bioassays------90%

5. The maximum temperature of combined effluent shall not exceed the background receiving water temperature by more than 45°F during November through May; and 35°F during June and October, and 30°F during July through September; nor shall the maximum effluent temperature exceed 105°F.

C. Solids Disposal:

1. Collected screenings, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations*

for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, California Code of Regulations, Division 2, Subdivision 1, Section 20005, et seq.

2. Any proposed change in solids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least **90 days** in advance of the change.

D. Receiving Water Limitations:

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. As such, they are a required part of this permit. However, a receiving water condition not in conformance with the limitation is not necessarily a violation of this Order. The Regional Board may require an investigation to determine cause and culpability prior to asserting a violation has occurred. The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen to fall below 7.0 mg/l.

2. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.

3. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.

4. Esthetically undesirable discoloration.

5. Fungi, slimes, or other objectionable growths.

6. Increases in turbidity over background levels shall not exceed the following limits:

   a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.

   b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
   c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.

   d. More than 10 percent where natural turbidity is greater than 100 NTUs.

7. The ambient pH to fall below 6.5, exceed 8.5, or change by more than 0.5 units.

8. Deposition of material that causes nuisance or adversely affects beneficial uses.

9. A zone, either individually or combined with other discharges, defined by water temperatures of more than 1^{o}F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of the main river channel at any point.

10. An area of surface water temperature rise greater than 4 ^{O}F above the natural temperature of the receiving waters at any time or place.

11. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.

12. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

13. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.

14. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.

15. Violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Water Resources Control Board pursuant to the CWA and regulations adopted thereunder. If more stringent applicable water quality standards are approved pursuant to Section 303 of the CWA, or amendments thereto, the Regional Board will revise and modify this Order in accordance with such more stringent standards.

E. Provisions:

1. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

2. **Chronic Toxicity Testing:** The Discharger shall conduct the chronic toxicity testing specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity (other than salinity), the Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a workplan to

conduct a Toxicity Reduction Evaluation (TRE) and, after Regional Board evaluation, conduct the TRE. This Order may be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if a chronic toxicity water quality objective is adopted by the State Water Resources Control Board, this Order may be reopened and a limitation based on that objective included.

3. **Summary Pollutant Data and Receiving Water Characterization Report**: There are indications that the discharge may contain constituents that have a reasonable potential to cause or contribute to an exceedance of NTR, CTR water quality objectives, or supplemental constituents that could exceed Basin Plan numeric or narrative water quality objectives. The constituents are specifically listed in a letter for submission of a technical report requirement issued by the Executive Officer on 10 September 2001. The results of the first portion of the study were required to be submitted to the Regional Board by 23 March 2003, and was submitted by the Discharger on 1 March 2003. A copy of that letter, including its attachments is incorporated into this Order as Attachments D through D4, and include NTR, CTR and additional constituents, which could exceed Basin Plan numeric or narrative water quality objectives. The Discharger shall comply with the second portion of the study by submitting a study report on dioxins by **1 November 2004.**

   This Provision is intended to be consistent with the requirements of the 10 September 2001 technical report request. The Discharger shall submit to the Regional Board on or before the compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it returns to compliance with the time schedule.

   If after review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality standard this Order will be reopened and effluent limitations added for the subject constituents.

4. The Discharger shall use the best practicable treatment or control technique currently available to limit mineralization to no more than a reasonable increment.

5. The Discharger shall comply with all of the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)", dated 1 March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provision(s)."

6. The Discharger shall comply with the attached Monitoring and Reporting Program No. R5-2003-0073, which is part of this Order, and any revisions thereto, as ordered by the Executive Officer.

When requested by USEPA, the Discharger shall complete and submit Discharge Monitoring Reports. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger Self Monitoring Reports.

7. This Order expires on **1 April 2008** and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such date in application for renewal of waste discharge requirements if it wishes to continue the discharge.

8. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of or clearance from the State Water Resources Control Board (Division of Water Rights).

9. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

   To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name, address, and telephone number of the persons responsible for contact with the Regional Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 25 April 2003.

_____
THOMAS R. PINKOS, Executive Officer

RDJ:

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2003-0073

NPDES NO. CA 0004847

FOR
GAYLORD CONTAINER CORPORATION
ANTIOCH PAPER AND PULP MILL
ANTIOCH, CONTRA COSTA COUNTY

This program to monitor surface water is necessary to assure compliance with the waste discharge requirements of this Order. The Discharger shall not implement any changes to this Program unless and until the Regional Board issues a revised Monitoring and Reporting Program. For purposes of evaluating compliance with the limitations of Order No. R5-2003-0073, the Discharger shall conduct monitoring and submit reports as specified below. Specific sample station locations shall be established under direction of the Board's staff, and a description of the stations shall be attached to this Order.

INFLUENT INTAKE MONITORING
(San Joaquin River intake water and Contra Costa intake water)

When discharging to the San Joaquin River, influent San Joaquin river and Contra Costa Water District canal (**if used**) water samples shall be collected at approximately the same time as effluent samples and should be representative of the influent. The results of the monitoring shall be individually reported. A calculation of the flow weighted average of the San Joaquin River and Contra Costa canal water shall be clearly presented if receiving water intake credits are to be utilized. Influent monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency
Flow	mgd	Meter	Continuous
Temperature	°F/°C	Grab	Daily
pH	pH Units	Grab	Daily
Electrical Conductivity @25°C[3]	µmhos/cm	Grab	Weekly
Total Dissolved Solids[3]	mg/l	Grab	Monthly
Hardness, as $CaCO_3$[1]	mg/l	Grab	Monthly
Aluminum[3]	µg/l	Grab	Monthly
Chloride[3]	mg/l	Grab	Monthly
Copper[3]	µg/l	Grab	Monthly
Cyanide[3]	µg/l	Grab	Monthly
Iron[3]	µg/l	Grab	Monthly
Lead[3]	µg/l	Grab	Monthly
Manganese[3]	µg/l	Grab	Monthly

Constituents	Units	Type of Sample	Sampling Frequency
Selenium[3]	µg/l	Grab	Monthly
Mercury[3,4]	µg/l	Grab	Monthly
Standard Minerals[3,5]	mg/l	Grab	Annually
Priority Pollutants[3,2]	µg/l	Grab	Annually

[1] To be collected concurrently with effluent monthly monitoring of copper and lead.
[2] Priority pollutants are defined as U.S. EPA Priority Pollutants and consist of the constituents listed in the most recent National Toxics Rule and California Toxics Rule.
[3] To be collected concurrently with effluent monitoring for these constituents.
[4] Use clean sample collection techniques and EPA Test Method 1669 or 1631, or later amendment for Mercury.
[5] Standard minerals shall include all major cations and anions and include a verification that the analysis is complete (i.e., cation/anion balance).

EFFLUENT MONITORING
(Outfall 002)

Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the outfall. Effluent samples should be representative of the total volume and quality of the discharge. Since effluent and stormwater are discharged through the same outfall 002, effluent samples are to be collected upstream of the main weir, before once-through cooling water can commingle with stormwater runoff. Date and time of collection of samples shall be recorded and reported. Effluent monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency
Flow	mgd	Meter	Continuous
PH	pH units	Grab	Daily
Temperature	°C/°F	Grab	Daily
Electrical Conductivity @25°C[2]	µmhos/cm	Grab	Weekly
Total Dissolved Solids[2]	mg/l, lbs/day	Grab	Monthly
Aluminum[2]	µg/l	Grab	Monthly
Chloride[,2]	mg/l, lbs/day	Grab	Monthly
Copper[2,3]	µg/l, lbs/day	Grab	Monthly
Cyanide[2]	µg/l	Grab	Monthly
Iron[2]	µg/l, lbs/day	Grab	Monthly
Lead[3]	µg/l	Grab	Monthly
Manganese[2]	µg/l	Grab	Monthly
Selenium[2]	µg/l	Grab	Monthly
Mercury[2,4]	µg/l, lbs/day	Grab	Monthly
Acute Toxicity[5]	% Survival	Grab	Monthly

Constituents	Units	Type of Sample	Sampling Frequency
Standard Minerals[1,2]	mg/l	Grab	Annually
Priority Pollutants[2]	µg/l	Grab	Annually

1 Standard minerals shall include calcium, magnesium, hardness, sodium, potassium, alkalinity, sulfate, chloride, boron, and nitrate, and include verification that the analysis is complete (i.e., cation/anion balance).

2 To be collected concurrently with influent intake San Joaquin River and Contra Costa canal water (if used) monitoring for these constituents.

3 To be collected concurrently with influent intake San Joaquin River monitoring for hardness.

4 Requires use of "clean technique" (EPA Method 1631) for sampling, handling and analysis, or later amendment

5 The bioassay shall be 96-hour acute toxicity test in accordance with EPA/821-R-02-012, fifth edition or later amendment approved by Board staff. Species shall be fathead minnows (Pimephales promelas). Temperature and pH shall be recorded each day of the test. No pH adjustment.

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

RECEIVING WATER MONITORING

All receiving water samples shall be grab samples. Receiving water monitoring shall include at least the following:

Station	Description
R-l	No longer used since no discharge at outfall 001.
R-2	No longer used since no discharge at outfall 001.
R-3	500 feet upstream from the point of discharge, outfall 002.
R-4	500 feet downstream from the point of discharge, outfall 002.

Constituents	Units	Sampling Station	Sampling Frequency
Dissolved Oxygen	mg/l	R-3, R-4	Monthly
pH	pH units	R-3, R-4	Monthly
Turbidity	NTU	R-3, R-4	Monthly
Temperature	°C/°F	R-3, R-4	Monthly

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Stations R-3 through R-4. Attention shall be given to the presence or absence of:

a. Floating or suspended matter
b. Discoloration
c. Bottom deposits
d. Aquatic life
e. Visible films, sheens or coatings
f. Fungi, slimes, or objectionable growths
g. Potential nuisance conditions

Notes on receiving water conditions shall be summarized in the monitoring report.

THREE SPECIES CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent from Outfall 002 is contributing toxicity to the San Joaquin River in accordance with USEPA Methods EPA/821-R-02-013, fourth edition (which requires use of dilution series), or later amendment. Chronic toxicity samples shall be collected at the discharge of Outfall 002. Twenty-four hour composite samples shall be representative of the volume and quality of the discharge. Time of collection samples shall be recorded. The effluent tests must be conducted with concurrent reference toxicant tests. Monthly laboratory reference toxicant tests may be substituted upon approval. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic manual. If the test acceptability criteria are not achieved, then the Discharger must re-sample and re-test within 14 days. Chronic toxicity monitoring shall include the following:

Species: Pimephales promelas (larval stage), Ceriodaphnia dubia, and Selenastrum capricornutum

Frequency: Outfall 002, Semiannually (January and July)

Dilution Series:

	Dilutions (%)					Controls	
	100	75	50	25	12.5	Receiving Water	Lab Water
% WWTP Effluent	100	75	50	25	12.5	0	0
% Dilution Water*	0	25	50	75	87.5	100	0
% Lab Water	0	0	0	0	0	0	100

* - Dilution water shall be receiving water from the San Joaquin River taken upstream from the discharge point. The dilution series may be altered upon approval of Board staff.

The fresh water species may be substituted with marine species, namely *Mysidopsis bahia* (3rd editions EPA/821-R-02-014), *Pimephales promelas* and *Selenastrum capricornutum* (4th edition EPA/821-R-02-013, which also requires dilution series) if:

1. The EC levels in the effluent are above 8750 µmhos/cm greater than 75% of the time, or
2. The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

REPORTING

Monthly monitoring results shall be submitted to the Regional Board by the **1st day** of the second month following sample collection. Quarterly and annual monitoring results shall be submitted by the **1st day of the second month following each calendar quarter and year**, respectively.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. A table shall be submitted demonstrating influent intake credits (San Joaquin River water and if used Contra Costa Canal water), including each constituent concentration, and the flow weighted average of the constituent concentrations. An example is shown below:

Constituent	Effluent			SJ River intake			CC Canal intake			Intake Flow weighted Avg		
	Flow	Concentration	Mass	Flow	Concentration	Mass	Flow	Concentration	Mass	Flow	Concentration	Mass

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

By **30 January** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

a. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

b. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.6).

The Discharger may also be requested to submit an annual report to the Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

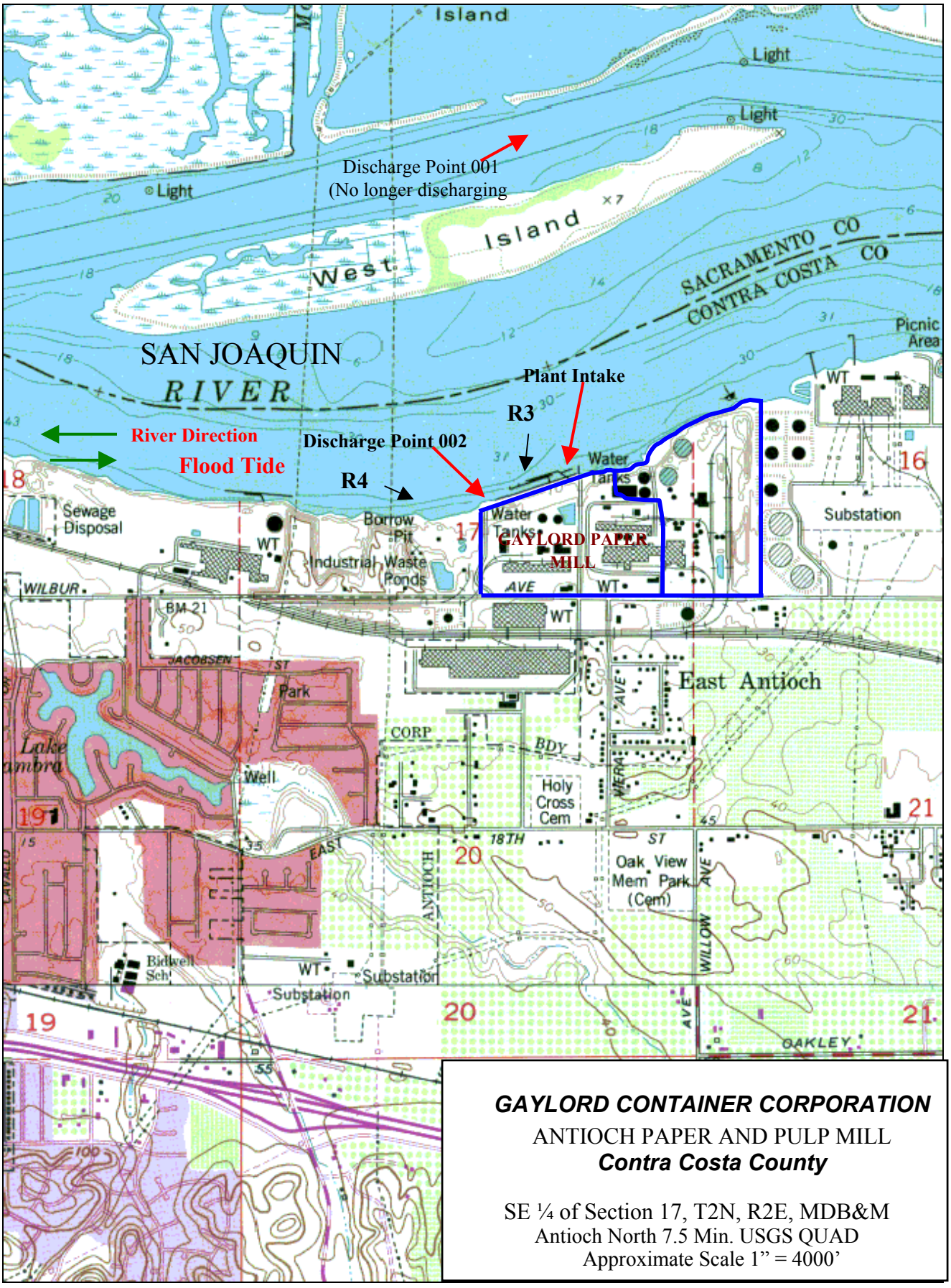
All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision D.6.
The Discharger shall implement the above monitoring program on the first day of the month following effective date of this Order.

Ordered By: THOMAS R. PINKOS, Executive Officer

25 April 2003
(Date)

RDJ:

ATTACHMENT A



GAYLORD CONTAINER CORPORATION

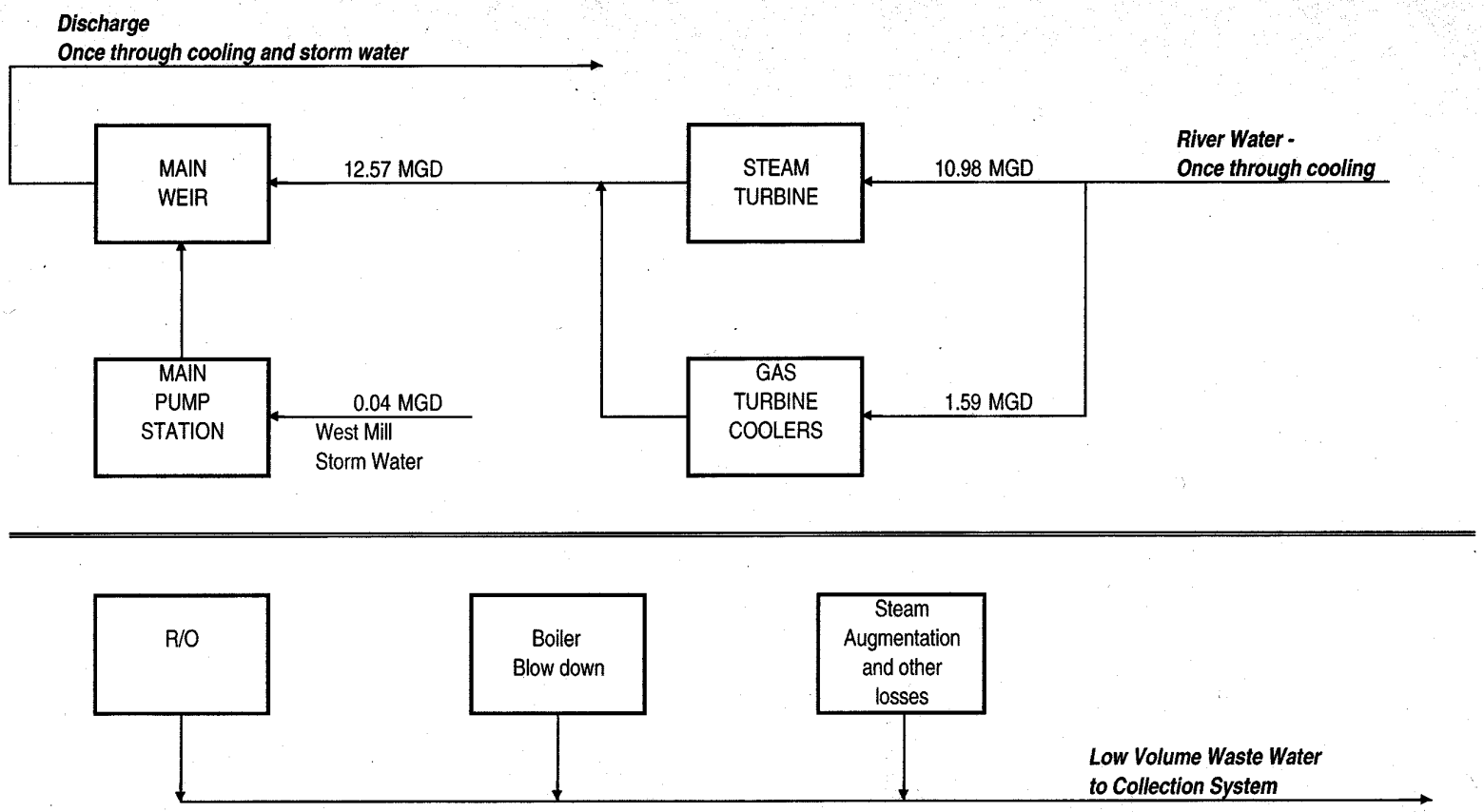
ANTIOCH PAPER AND PULP MILL

Contra Costa County

SE ¼ of Section 17, T2N, R2E, MDB&M
Antioch North 7.5 Min. USGS QUAD
Approximate Scale 1" = 4000'

ATTACHMENT B

GAYLORD CONTAINER CORPORATION FLOW DIAGRAM



ATTACHMENT C

GAYLORD CONTAINER CORPORATION RECEIVING WATER DATA

Results of RMP conventional water quality parameter data collected in the San Joaquin River, Station BG30, 5 March 1993 through 21 July 1999

Date	Conductivity (µmhos)	Salinity	DO (mg/l)	pH	Temp (°C)	TSS (mg/l)	Hardness (mg/l)	Ammonia (mg/l)	Nitrate as N (mg/l)
3/5/93	N/A	0	9.4	7.7	14	42.5	N/A	0.13	0.5
5/27/93	N/A	0	9.9	7.9	20	43.9	N/A	**0.0012**	**0.0014**
9/16/93	850	**0.02**	8.8	7.6	21.5	37.5	N/A	0.03	0.24
2/8/94	950	0.0	N/A	7.6	11.5	13.8	170	0.165	0.45
4/28/94	700	0.0	N/A	8	17.4	30.4	150	0.03	0.44
8/24/94	3610	**1.8**	N/A	7.9	23	17.5	**530**	0.04	0.24
02/15/95	131	0.0	9.6	7.5	11.1	23	64	0.09	0.57
04/18/95	134	0.0	9.6	7.7	13.7	24	68	0.06	0.22
08/23/95	190	0.0	8.0	7.7	**23.3**	26.5	76	0.03	0.17
2/14/96	140	0.0	9	**6.3**	12.5	24.6	170	0.14	**0.62**
4/23/96	147	0.0	9.9	7.8	16.1	**11.1**	96	0.03	0.26
7/22/96	N/A	0.0	8.3	7.8	22.7	29	84	0.04	0.21
1/29/97	**110**	0.0	8.4	7.1	12.1	**70**	**43**	**0.2**	0.7
4/23/97	200	0.0	8.4	7.8	18.3	22	70	0.0	0.4
8/6/97	810	0.3	**7.3**	**8.1**	23.2	32	110	N/A	0.2
2/4/98	**9770**	0.0	9.8	7.6	10.8	50	N/A	0.10	0.6
4/16/98	223	0.0	8.4	7.4	14.3	23	67	0.05	N/A
7/29/98	140	0.0	7.6	7.7	22.4	28	47	0.04	0.3
2/10/99	193	0.0	**11.2**	7.1	**9.6**	19.5	58	0.14	0.53
4/21/99	191	0.0	9.2	7.7	16.6	21.5	62	0.04	0.22
7/21/99	675	0.0	8.6	7.9	20.5	42.7	101	0.06	0.26
# of Observatio	18	21	18	21	21	21	18	21	20
Maximum	9770	1.8	11.2	8.1	23.3	70	530	0.2	0.62
Minimum	110	0.02	7.3	6.3	9.6	11.1	43	0.0012	0.0014
Average									

Results of RMP priority pollutant data collected in the San Joaquin River, Station BG30, 5 March 1993 through 21 July 1999.

Constituent CTR # Date	**Sb µg/L #1**	**As µg/L #2**	**Be µg/L #3**	**Cd µg/L #4**	**Cr Total µg/l**	**Cr (III) µg/L # 5a**	**Cr (VI) µg/L # 5b**	**Cu µg/L #6 Tot/Diss**	**Pb µg/L #7 Tot/Diss**	**Hg µg/L #8**	**Ni µg/L #9**	**Selenium µg/L #10**	**Silver µg/L #11**	**Thallium µg/L #12**	**Zinc µg/L #13**	**Cyanide µg/L #14**	**Asb MF/l #15**
3/5/93	N/A	1.85	N/A	0.022	8.8	N/A	N/A	**5.31/2.94**	0.85/0.29	0.0106	**6.52**	0.159	0.008	N/A	7.5	N/A	N/A
5/27/93	N/A	1.71	N/A	0.027	4.81	N/A	N/A	3.9/1.71	0.788/0.06	0.008	3.4	0.204	**0.044**	N/A	5.41	N/A	N/A
9/16/93	N/A	1.99	N/A	0.024	4.94	N/A	N/A	4.12/1.70	1.07/0.05	0.011	4.03	0.265	0.010	N/A	**9.4**	N/A	N/A
2/8/94	N/A	1.78	N/A	0.0184	1.68	N/A	N/A	3.01/2.25	0.50/0.083	0.0051	2.49	0.25	0.0102	N/A	3.62	N/A	N/A
4/28/94	N/A	2.15	N/A	0.0266	3.69	N/A	N/A	3.82/2.24	0.81/0.006	0.0146	3.82	0.22	0.0105	N/A	4.04	N/A	N/A
8/24/94	N/A	2.54	N/A	0.0280	2.63	N/A	N/A	3.28/2.11	0.41/0.023	0.0044	2.17	0.06	0.0024	N/A	2.40	N/A	N/A
2/15/95	N/A	1.88	N/A	0.0170	3.72	N/A	N/A	4.16/2.34	0.54/0.011	0.0076	4.75	0.13	0.0067	N/A	5.04	N/A	N/A
4/18/95	N/A	1.48	N/A	0.0170	4.18	N/A	N/A	3.14/1.62	0.67/0.127	0.0073	3.13	0.33	0.0067	N/A	3.62	N/A	N/A
8/23/95	N/A	2.32	N/A	0.020	3.8	N/A	N/A	2.77/1.55	0.63/0.012	0.0063	2.55	0.06	0.0070	N/A	3.37	N/A	N/A
2/14/96	N/A	1.78	N/A	0.02	6.5	N/A	N/A	3.5/2.2	0.60/0.141	0.0060	4.6	0.18	0.005	N/A	4.8	N/A	N/A
4/23/96	N/A	1.30	N/A	0.01	1.5	N/A	N/A	2.1/1.2	0.30/0.057	0.0020	1.8	0.18		N/A	2.0	N/A	N/A
7/22/96	N/A	2.16	N/A	0.02	4.1	N/A	N/A	3.3/1.7	1.1/0.060	0.0070	3.8	0.10	0.003	N/A	3.9	N/A	N/A
1/29/97	N/A	2.43	N/A	0.02	**8.92**	N/A	N/A	4.8/1.9	**1.21/0.415**	**0.0156**	4.8	0.17	N/A	N/A	7.6	N/A	N/A
4/23/97	N/A	1.89	N/A	0.02	2.78	N/A	N/A	2.8/1.7	N/A/0.084	0.0056	2.7	0.20	N/A	N/A	3.6	N/A	N/A
8/6/97	N/A	**2.63**	N/A	0.02	4.4	N/A	N/A	2.4/1.5	N/A	0.0079	3.2	0.09	N/A	N/A	3.9	N/A	N/A
2/4/98	N/A	2.38	N/A	**0.03**	8.34	N/A	N/A	4.1/1.9	0.82/0.254	0.0096	5.2	0.20	0.012	N/A	7.6	N/A	N/A
4/16/98	N/A	1.45	N/A	0.01	2.65	N/A	N/A	2.5/1.4	0.38/0.094	0.0049	3.0	**0.43**	0.006	N/A	3.3	N/A	N/A
7/29/98	N/A	2.23	N/A	0.02	4.08	N/A	N/A	2.1/1.4	0.32/0.099	0.0021	1.8	0.19	0.002	N/A	3.4	N/A	N/A
2/10/99	N/A	1.32	N/A	N/A	N/A	N/A	N/A	3.0/1.5	0.56/0.10	0.0056	5.3	0.13	0.006	N/A	3.9	N/A	N/A
4/21/99	N/A	1.37	N/A	N/A	N/A	N/A	N/A	2.9/1.6	0.46/0.07	0.0067	3.0	0.06	0.01	N/A	3.3	N/A	N/A
7/21/99	N/A	2.36	N/A	N/A	N/A	N/A	N/A	4.1/1.8	0.91/0.09	0.0084	5.2	0.12	0.009	N/A	5.8	N/A	N/A
Observed Maximum SIP Section 1.4.3.1	N/A	**2.63**	N/A	**0.03**	**8.92**	N/A	N/A	**Total 5.31 Diss 2.94**	**Total 1.21 Diss 0.415**	**0.0156**	**6.52**	**0.43**	**0.044**	N/A	**9.4**	N/A	N/A
Arithmetic Mean SIP Section 1.4.3.2	N/A		N/A			N/A	N/A							N/A		N/A	N/A

Results of conventional water quality data collected in 2002 in the San Joaquin River @ R1 monitoring Station

Date	EC (µmhos/cm	TDS (mg/l)	DO (mg/l)	pH	Temp (°C)	Sulfate (mg/l)	Hardness (mg/l)	Ammonia (mg/l)	Aluminum (ug/l)	Barium (ug/l)	Fluoride (ug/l)	Iron (ug/l)	Manganese (ug/l)	Chloride (mg/l)	Nitrate as N (mg/l)
2/5/02	630	340		7.8	8.9	34	140	<0.050	586	36	100	1400	32	120	0.5
3/12/02	350	180		7.8	14.4	23	91	0.080	740	30.1	<100	700	22	42	0.5
4/2/02	420	230		8.0	17.9	23	88	0.080	769	25	<100	650	24	65	0.3
5/7/02	280	170		7.9	18.3	21	76	0.050	1330	29.6	<100	1000	30	27	0.3
6/4/02	290	150		7.7	21.8	25	71	0.260	1010	27.8	<100	700	25	26	0.4
7/15/02	2900	1500		7.9	23.8	110	300	0.180	962	47	<100	1200	28	700	0.4
8/6/02	1300	720		8.1	20.9	56	160	0.100	53	32.9	<100	710	28	350	0.2
9/3/02	1800	990		7.9	22.4	78	210	0.040	688	47.2	100	660	24	520	0.2
10/1/02	1700	940		7.7	N/A	73	210	<0.050	366	44.8	300	440	23	520	0.2
Observed Maximum	**2900**	**1500**		**8.1**	**23.8**	**110**	**300**	**0.26**	**1330**	**47.2**	**300**	**1400**	**32**	**700**	**0.5**

Results of priority pollutant data collected in 2002 in the San Joaquin River @ R1 monitoring Station

Constituent CTR # Date	Sb µg/L #1	As µg/L #2	Be µg/L #3	Cd µg/L #4	Cr Total µg/l	Cr (III) µg/L # 5a	Cr (VI) µg/L # 5b	Cu µg/L #6	Pb µg/L #7	Hg µg/L #8	Ni µg/L #9	Se µg/L #10	Silver µg/L #11	Thallium µg/L #12	Zn µg/L #13	Cyanide µg/L #14	Asb MF/l #15
2/5/02	0.12	2.4	<0.5	<0.02	2.7	2.7	<2	4.7	0.7	0.0265	5	1.5	<0.25	<0.01	5	23	<0.56
3/12/02	<0.02	2.1	<0.5	<0.02	1.8	1.8	<2	3.3	0.6	0.0045	3	1.0	<0.25	0.06	6	<5	<0.19
4/2/02	0.13	2.3	<0.5	<0.02	2.2	2.2	<2	3.7	0.5	0.0041	4	1.3	<0.25	0.03	<5	9	<0.11
5/7/02	0.10	2.4	<0.5	0.07	3.0	3.0	<2	4.0	0.7	0.0057	4	0.9	<0.25	0.03	11	<5	<0.27
6/4/02	<0.02	2.4	<0.5	<0.02	2.3	2.3	<2	3.6	0.6	0.0041	4	0.5	<0.25	0.04	6	<5	<0.20
7/15/02	<0.02	6.0	<0.5	<0.02	3.5	3.5	<2	6.2	0.5	0.0066	4	10.8	<0.25	<0.01	5	<5	<1.1
8/6/02	0.08	3.7	<0.5	<0.02	0.2	0.2	<2	3.2	0.2	0.0044	1	5.8	0.35	<0.01	8	<5	<0.2
9/3/02	<0.02	4.2	<0.5	<0.02	1.9	1.9	<2	5.1	0.38	0.0042	3	7.1	<0.25	<0.01	20	<5	<0.2
10/1/02	<0.02	4.0	<0.5	<0.02	1.9	1.9	<2	4.7	0.32	0.0032	3	6.2	<0.25	0.02	7	<5	<0.2
Observed Maximum	**0.13**	**6.0**	**<0.5**	**0.07**	**3.5**	**3.5**	**<2**	**6.2**	**0.7**	**0.0265**	**5**	**10.8**	**0.35**	**0.06**	**20**	**23**	**<0.2**
Arithmetic Mean	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.044	N/A	N/A	N/A

SUMMARY EFFLUENT DATA AND CRITERIA, PRIORITY POLLUTANTS

CTR Constituent Sample Date	Sb µg/L #1	As µg/L #2	Be µg/L #3	Cd µg/L #4	Cr Total µg/l	Cr (III) µg/L # 5a	Cr (VI) µg/L # 5b	Cu µg/L #6	Pb µg/L #7	Hg** µg/L #8	Ni µg/L #9	Se µg/L #10	Silver µg/L #11	Thallium µg/L #12	Zinc µg/L #13	Cyanide µg/L #14	Asb MF/l #15
MEC	0.13	6.0	<0.5	0.07	8.92	3.5	<2	6.2	1.21	0.0265	6.52	10.8	0.35	0.06	25	23	<0.2
Max Background, B Total	0.13	6.0	<0.5	0.07	8.92	3.5	<2	6.2	1.21	0.0265	6.52	10.8	0.35	0.06	25	23	<0.2
CMC (µg/l)Freshwater (Saltwater) Diss.@43mg/l Hardness		340 i,m,w (69 i,m)		**1.7** e,i,m,w,x (42 i,m)		275 e,i,m,o	16 i,m,w (1100),	6 e,i,m,w,x (4.8 i,m)	25 e,i,m (210)		229 e,i,m,w (74 i,m)	P (290 i,m)	**0.81** e,i,m (1.9 i,m)		**57** e,i,m,w,x (90 i,m)		
CMC (µg/l)Freshwater **Total** @ 43mg/l Hardness				1.7		870		6.3	28		230	20	0.95		59	22 o (1.0 r)	
CCC (µg/l) Freshwater (Saltwater) Diss.@43mg/l Hardness		150 i,m,w (36 i,m)		**1.2** e,i,m,w (9.3 i,m)		**89** e,i,m,o	**11** i,m,w (50)	**4.3** e,i,m,w (3.1)	**1.0** e,i,m (8.1)		**25** e,i,m,w (**8.2** i,m)	(71 i,m)			58 e,i,m,w (81 i,m)		
CCC (µg/l)Freshwater **Total** @ 43mg/l Hardness				1.3		104		4.5	1.1		26	**5**			59	**5.2** o (**1.0** r)	
HHealth (µg/l) Water+Org	14 a,s		n	N		n	n	1300	n	0.050 a	610 a	n		**1.7** a,s		700 a	**7Mil** f/l k,s
HHealth (µg/l) Org Only	4300 a,t		n	N		n	n		n	0.051 a	4600 a	n		6.3 a,t		220,000 a,j	
Numeric Basin Plan Objective (µg/l) (MCL, site specific)	MCL **6**	Site Sp **10**	MCL **4**		MCL **50**			Site Sp 10		303d **0**	MCL 100	MCL 50	Site Sp 10	MCL 2	Site Sp 100	Site Sp 10	MCL 7 Mil f/l
Narrative Basin Plan Objective (µg/l)		MCL 10		MCL 5					AL 15								
Reasonable Potential	N	N	N	N	N	N	N	**Y**	**Y**	**Y**	N	**Y**	N	N	**N**	**Y**	N

Notes: Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California, 40 CFR Part 131, FR/Vol. 65, No. 97/Thursday, May 18, 2000/Rules and Regulations I = Inconclusive * Results from Gaylord's1998-2001 Sampling ** 303d Listed Constituent, Sac-SJ Delta

GAYLORD CONTAINER EFFLUENT DATA, PRIORITY POLLUTANTS (CONTINUED)

Constituent CTR #	2, 3, 7, 8-TCDD (Dioxin) # 16	Acrolein # 17	Acrylonitrile # 18	Benzene # 19	Bromoform # 20	Carbon Tetrachloride # 21	Chlorobenzene # 22	Chlorodibromo-methane # 23	Chloroethane # 24	2-Chloro-ethylvinyl Ether # 25
MEC, ug/L	<0.000005	<5	<2	<0.5	<2	<0.3	<2	<0.1	<2	<1
Background, ug/L	<0.000005	<5	<2	<0.5	<2	<0.3	<2	<0.1	<2	<1
BP Obj (ug/L)				MCL 1			MCL 70			
CMC (ug/L)										
CCC (ug/L)										
HHealth (ug/L) Water +Org Only	0.000000013 c	320 s	0.059 a,c,s	1.2 a,c	4.3 a,c	0.25 a,c,s	680 a,s	0.41 a,c		
HHealth (µg/l) Org Only	0.000000014 c	780 t	0.66 a,c,t	71 a,c	360 a,c	4.4 a,c,t	21,000 a,j,t	34 a,c		
Reasonable Potential	N	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

GAYLORD CONTAINER EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	Chloroform # 26	Dichloro-bromomethane # 27	1,1-Dichloro-ethane # 28	1,2-Dichloro-ethane # 29	1,1-Dichloro-ethylene # 30	1,2-Dichloro-propane # 31	1,3-Dichloro-propylene # 32	Ethyl benzene # 33	Methyl Bromide (Bromomethane) # 34	Methyl Chloride (Chloromethane # 35
MEC, ug/L	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<2	<2	<2
Background, ug/L	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<2	<2	<2
BP Obj, (ug/L)	MCL/THM 80		MCL 5	MCL 5			MCL 0.5	MCL 700		
CMC (ug/L)										
CCC (ug/L)										
HHealth (ug/L) Water +Org Only	Reserved	0.56 a,c		0.38 a,c,s	0.057 a,c,s	0.52 a	10 a,s	3,100 a,s	48 a	n
HHealth (µg/l) Org Only	Reserved	46 a,c		99 a,c,t	3.2 a,c,t	39 a	1,700 a,t	29,000 a,t	4,000 a	n
Reasonable Potential	N	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

GAYLORD CONTAINER EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**Methylene Chloride (Dichloromethane) # 36**	**1,1,2,2-Tetra-chloroethane # 37**	**Tetrachloro-ethylene # 38**	**Toluene # 39**	**1,2-Trans-Dichloro ethylene # 40**	**1,1,1 - Trichloro-ethane # 41**	**1,1,2-Trichloro-ethane # 42**	**Trichloro-ethylene # 43**	**Vinyl Chloride # 44**	**2-Chloro-phenol # 45**
MEC, ug/L	<2	<0.1	<0.5	<2	<1	<2	<0.5	<2	<0.5	<2
Background, ug/L	<2	<0.1	<0.5	<2	<1	<2	<0.5	<2	<0.5	<2
BP Obj, (ug/L)	MCL 5	MCL 1.0	MCL 5	MCL 150	MCL 10	MCL 200	MCL 5	MCL 5	MCL 0.5	
CMC (ug/L)										
CCC (ug/L)										
Hhealth (ug/L) Water +Org Only	4.7 a,c	0.17 a,c,s	0.8 c,s	6,800 a	700 a	n	0.60 a,c,s	2.7 c,s	2 c,s	120 a
Hhealth (µg/l) Org Only	1,600 a,c	11 a,c,t	8.85 c,t	200,000 a	140,000 a	n	42 a,c,t	81 c,t	525 c,t	400 a
Reasonable Potential	N	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

GAYLORD CONTAINER EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**2, 4 Dichlorophenol # 46**	**2,4-Dimethyl – phenol # 47**	**2-Methyl 4,6-Di-nitrophenol # 48**	**2,4-Dinitrophenol # 49**	**2-Nitrophenol # 50**	**4-Nitro – phenol # 51**	**4-chloro-3-methyl- phenol # 52**	**Pentachloro - phenol # 53**	**Phenol # 54**
MEC, ug/L	<1	<2	<10	<5	<10	<10	<5	<0.2	<1
Background, ug/L	<1	<2	<10	<5	<10	<10	<5	<0.2	<1
BP Obj, (ug/L)								MCL 1.0	
CMC (ug/L) Freshwater @ pH=6.5								4 f,w	
CCC (ug/L) Freshwater @ pH=6.5								5.3 f,w	
HHealth (ug/L) Water +Org Only	93 a,s	540 a	13.4 s	70 a,s				0.28 a,c	21,000 a
HHealth (µg/l)	790	2,300	765	14,000				8.2	4,600,000

Org Only	a,t	a	t	a,t				a,c,j	a,j,t
Reasonable Potential	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

GAYLORD CONTAINER EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**2, 4, 6 Trichloro-phenol # 55**	**Acenaphthene # 56**	**Acenaphthylene # 57**	**Anthracene # 58**	**Benzidine # 59**	**Benzo(a) anthracene # 60**	**Benzo(a) Pyrene # 61**	**Benzo(b) fluoranthene # 62**	**Benzo (ghi) perylene # 63**
MEC, ug/L	<1	<1	<10	<10	<1	<5	<2	<10	<5
Background, ug/L	<1	<1	<10	<10	<1	<5	<2	<10	<5
BP Obj, (ug/L)	P65 5								
CMC (ug/L)									
CCC (ug/L)									
HHealth (ug/L) Water +Org Only	2.1 a,c	1,200 a		9,600 a	0.00012 a,c,s	0.0044 a,c	0.0044 a,c	0.0044 a,c	
HHealth (µg/l) Org Only	6.5 a,c	2,700 a		110,000 a	0.00054 a,c,t	0.049 a,c	0.049 a,c	0.049 a,c	
Reasonable Potential	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

GAYLORD CONTAINER EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**Benzo(k) fluoranthene # 64**	**Bis (2-Chloro-ethoxy) Methane # 65**	**Bis (2-Chloro-ethyl) Ether # 66**	**Bis (2-Chloroiso-propyl) Ether # 67**	**Bis (2-Ethyl-hexyl) Phthalate # 68**	**4-Bromo-phenyl Phenyl Ether # 69**	**Butyl-benzyl Phthalate # 70**	**2-Chloro-naphthalene # 71**	**4-Chloro- phenyl Phenyl Ether # 72**
MEC, ug/L	<2	<5	<0.5	<10	<2	<10	<10	<10	<5
Background, ug/L	<2	<5	<0.5	<10	<2	<10	<10	<10	<5
BP Obj, (ug/L)			P65 0.15		MCL 4				
CMC (ug/L)									
CCC (ug/L)									
HHealth (ug/L) Water +Org Only	0.0044 a,c		0.031 a,c,s	1,400 a	1.8 a,c,s		3,000 a	1,700 a	
HHealth (µg/l) Org Only	0.049 a,c		1.4 a,c,t	170,000 a,t	5.9 a,c,t		5,200 a	4,300 a	

Reasonable Potential	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

GAYLORD CONTAINER EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**Chrysene # 73**	**Dibenzo (ah) anthracene # 74**	**1,2 Dichloro-benzene # 75**	**1, 3 Dichloro-benzene # 76**	**1, 4 Dichloro-benzene # 77**	**3,3-Dichloro-benzidine # 78**	**Diethyl Phthalate # 79**	**Dimethyl Phthalate # 80**	**Di-n-Butyl Phthalate # 81**
MEC, ug/L	<5	<0.1	<2	<2	<2	<1	<2	<2	<10
Background, ug/L	<5	<0.1	<2	<2	<2	<1	<2	<2	<10
BP Obj, (ug/L)	P65 0.1	P65 0.1	MCL 600		MCL 5	P65 0.3			
CMC (ug/L)									
CCC (ug/L)									
HHealth (ug/L) Water +Org Only	0.0044 a,c	0.0044 a,c	2,700 a	400	400	0.04 a,c,s	23,000 a,s	313,000 s	2,700 a,s
HHealth (µg/l) Org Only	0.049 a,c	0.049 a,c	17,000 a	2,600	2,600	0.077 a,c,t	120,000 a,t	2,900,000 t	12,000 a,t
Reasonable Potential	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

GAYLORD CONTAINER EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**2,4-Dinitro – toluene # 82**	**2,6-Dinito-toluene # 83**	**Di-n-Octyl Phthalate # 84**	**1,2-Diphenyl – hydrazine # 85**	**Fluoranthene # 86**	**Fluorene # 87**	**Hexachloro-benzene # 88**	**Hexachloro – butadiene # 89**	**Hexachloro - cyclopentadiene # 90**
MEC, ug/L	<1	<1	<10	<0.5	0.18	<10	<0.5	<0.5	<5
Background, ug/L	<1	<1	<10	<0.5	0.18	<10	<0.5	<0.5	<5
BP Obj, (ug/L)	P65 1.0			P65 0.4			P65 0.2		MCL 50
CMC (ug/L)									
CCC (ug/L)									
HHealth (ug/L) Water +Org Only	0.11 c,s			0.040 a,c,s	300 a	1,300 a	0.00075 a,c	0.44 a,c,s	240 a,s
HHealth (µg/l) Org Only	9.1 c,t			0.54 a,c,t	370 a	14,000 a	0.00077 a,c	50 a,c,t	17,000 a,j,t

Reasonable Potential	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

GAYLORD CONTAINER EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**Hexachloro – ethane # 91**	**Indeno (1,2,3-cd) pyrene # 92**	**Isophorone # 93**	**Naphthalene # 94**	**Nitrobenzene # 95**	**N-Nitrosodimethyl-Amine # 96**	**N-Nitrosodi-N-Propylamine # 97**	**N-Nitrosodiphenyl amine # 98**
MEC, ug/L	<1	<0.05	<1	<10	<10	<0.5	<1	<1
Background, ug/L	<1	<0.05	<1	<10	<10	<0.5	<1	<1
BP Obj, (ug/L)	P65 10					P65 0.02	P65 0.05	P65 40
CMC (ug/L)								
CCC (ug/L)								
HHealth (ug/L) Water +Org Only	1.9 a,c,s	0.0044 a,c	8.4 c,s		17 a,s	0.00069 a,c,s	0.005 a	5.0 a,c,s
HHealth (µg/l) Org Only	8.9 a,c,t	0.049 a,c	600 c,t		1,900 a,j,t	8.1 a,c,t	1.4 a	16 a,c,t
Reasonable Potential	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

GAYLORD CONTAINER EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**Phenanthrene # 99**	**Pyrene # 100**	**1,2,4-Trichloro-benzene # 101**	**Aldrin # 102**	**α-BHC # 103**	**β-BHC # 104**	**γ-BHC (Lindane) # 105**	**δ-BHC # 106**	**Chlordane # 107**	**4,4' DDT # 108**
MEC, ug/L	0.14	0.09	<5	<0.005	<0.01	<0.005	<0.01	<0.005	<0.1	<0.01
Background, ug/L	0.14	0.09	<5	<0.005	<0.01	<0.005	<0.01	<0.005	<0.1	<0.01
BP Obj, (ug/L)			MCL 70	303d/OCPest <0.005	303d/OCPest <0.01	303d/OCPest <0.005	303d/OCPest <0.019	303d/OCPest <0.005	303d/OCPest <0.1	303d/OCPest <0.01
CMC (ug/L) freshwater (Saltwater)				3 g (1.3 g)			0.95 w (0.16 g)		2.4 g (0.09 g)	1.1 g (0.13 g)
CCC (ug/L) freshwater (Saltwater)									0.0043 g (0.004 g)	0.001 g (0.001 g)
HHealth (ug/L) Water +Org Only		960 a		0.00013 a,c	0.0039 a,c	0.014 a,c	0.019 c		0.00057 a,c	0.00059 a,c
HHealth (µg/l)		11,000		0.00014	0.013	0.046	0.063		0.00059	0.00059

Org Only		a		a,c	a,c	a,c	c		a,c	a,c
Reasonable Potential	N	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

GAYLORD CONTAINER EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	**4, 4'- DDE # 109**	**4,4'-DDD # 110**	**Dieldrin # 111**	**alpha-Endo-sulfan # 112**	**beta- Endo-sulfan # 113**	**Endosulfan Sulfate # 114**	**Endrin # 115**	**Endrin Aldehyde # 116**	**Heptachlor # 117**	**Heptachlor Epoxide # 118**
MEC, ug/L	<0.05	<0.05	<0.01	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01
Background, ug/L	<0.05	<0.05	<0.01	<0.02	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01
BP Obj, (ug/L)	OCPest <0.05	OCPest <0.05	303d/OCPest <0.01	303d/OCPest <0.02	303d/OCPest <0.01	303d/OCPest <0.05	303d/OCPest <0.01	303d/OCPest <0.01	303d/OCPest <0.01	303d/OCPest <0.01
CMC (ug/L) freshwater (Saltwater)			0.24 w (0.71 g)	0.22 g (0.034 g)	0.22 g (0.034 g)		0.086 w (0.037 g)		0.52 g (0.053 g)	0.52 g (0.053 g)
CCC (ug/L) freshwater (Saltwater)			0.056 w (0.0019 g)	0.056 g (0.0087 g)	0.056 g (0.0087 g)		0.036 w (0.0023 g)		0.0038 g (0.0036 g)	0.0038 g (0.0036 g)
HHealth (ug/L) Water +Org Only	0.00059 a,c	0.00083 a,c	0.00014 a,c	110 a	110 a	110 a	0.76 a	0.76 a	0.00021 a,c	0.00010 a,c
HHealth (µg/l) Org Only	0.00059 a,c	0.00084 a,c	0.00014 a,c	240 a	240 a	240 a	0.81 a,j	0.81 a,j	0.00021 a,c	0.00011 a,c
Reasonable Potential	N	N	N	N	N	N	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

GAYLORD CONTAINER EFFLUENT DATA, PRIORITY POLLUTANTS

Constituent CTR #	PCBs **# 119**	PCBs **# 120**	PCBs **# 121 -125**	Toxaphene # 126
MEC, ug/L	<0.5	<0.5	<0.5	<0.5
Background, ug/L	<0.5	<0.5	<0.5	<0.5
Basin Plan Objective (ug/L)	P65 0.045	P65 0.045	P65 0.045	303d/OCPest <0.5
CMC (ug/L) freshwater (Saltwater)				0.73 (0.21)
CCC (ug/L) freshwater (Saltwater)	0.014u (0.03 u)	0.014u (0.03 u)	0.014u (0.03 u)	0.0002 (0.0002)
HHealth (ug/L)Water +Org Only	0.00017c,v	0.00017c,v	0.00017c,v	0.00073a,c

HHealth (µg/l)Org Only	0.00017c,v	0.00017c,v	0.00017c,v	0.00075a,c
Reasonable Potential	N	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

SUMMARY GAYLORD CONTAINER EFFLUENT DATA AND CRITERIA, OTHER CONSTITUENTS

Constituent Date	**Al µg/L**	**NH_3 mg/L**	**Ba µg/L**	**Bo µg/L**	**Co µg/L**	**Cl mg/L**	**F µg/L**	**Fe µg/L**	**Mn µg/L**	**Nitrate as N, mg/L**	**Sulfate mg/L**	**TDS (EC) mg/L/ (umhos/cm)**	**V µg/L**
MEC	1330	0.26	47.2	400	0.11	700	300	2400*	59	0.50	110	1500 (9770)	
Max Background, Tot	1330	0.26	47.2	400	0.11	700	300	2400*	59	0.50	110	1500 (9770)	
Numeric Basin Plan Objective (µg/l) (MCL, site specific)	MCL **200**		Site Sp **100**	Ag WQ Gold Book **750**	Ag WQ Rome Paper **50**	Site Sp **250**	Ag WQ Rome Paper **1000**	Site Sp **300**	Site Sp **50**	MCL **10**	2ry MCL **250/500**	Ag WQ Rome Paper **450 (700)**	AL **50**
Narrative Basin Plan Objective (µg/l)	USEPA **87** CCC **750** CMC	USEPA **0.4** CCC **2.1** CMC											
Reasonable Potential	**Y**	N	N	N	N	**Y**	N	**Y**	**Y**	N	N	**Y**	I

* Results from Gaylord's 1998 Sampling

ATTACHMENT D

10 September 2001

REQUIREMENT TO SUBMIT MONITORING DATA

The Regional Water Quality Control Board (Board) is required to protect and enhance the beneficial uses of surface and ground waters in the Region. As part of that effort, National Pollutant Discharge Elimination System (NPDES) Permits are adopted which prescribe effluent limits for the types and concentrations of chemical and physical constituents which can be safely discharged. In order to prepare appropriate NPDES Permits, it is necessary to have adequate characterization of the discharged effluent and the receiving water.

The following is a requirement that you collect effluent and receiving water samples and have them analyzed for a variety of potential waste constituents. In most cases this monitoring will be in addition to monitoring required in your NPDES Permit. To the extent that there is overlap between this request and monitoring already being done under your Permit, the monitoring need not be duplicated. This requirement is brought on by a number of factors:

I. On 2 March 2000, the State Water Resources Control Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, also known as the State Implementation Policy (SIP). The SIP established methods of evaluating receiving water criteria and developing effluent limitation in NPDES Permits for the priority pollutants contained in the US Environmental Protection Agency's (USEPA) *California Toxics Rule* and portions of USEPA's *National Toxics Rule*. Section 1.2 of the SIP directs the Board to issue Water Code Section 13267 letters to all NPDES dischargers requiring submittal of data sufficient to (1) determine if priority pollutants require effluent limitations (Reasonable Potential Analysis) and (2) calculate water quality-based effluent limitations. Further, Section 2.4 of the SIP requires that each discharger submit to the Regional Boards reports necessary to determine compliance with effluent limitations for priority pollutants in permits. Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from http://www.swrcb.ca.gov/iswp/final.pdf.) To implement the SIP, effluent and receiving water data are needed for all priority pollutants. Effluent and receiving water pH and hardness are required to evaluate the toxicity of certain priority pollutants (such a heavy metals) where the toxicity of the constituents varies with pH and/or hardness. Section 3 of the SIP prescribes mandatory monitoring of dioxin congeners.

II. In addition to the specific requirements of the SIP, the Board is requiring the following monitoring needed for permit development:

   A. Organophosphorous pesticides, principally diazinon and chlorpyrifos, are commonly-used insecticides found in many domestic wastewater discharges at concentrations which can cause toxicity both in effluent and in receiving water. These pesticides are not "priority pollutants" and so are not part of the analytical methods routinely performed for NPDES discharges. **This monitoring is required of domestic wastewater dischargers only.**

ATTACHMENT D

B. Drinking water constituents. Constituents for which drinking water Maximum Contaminant Levels (MCLs) have been prescribed in the California Code of Regulation are included in the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (Basin Plan). The Basin Plan defines virtually all surface waters within the Central Valley Region as having existing or potential beneficial uses for municipal and domestic supply. The Basin Plan further requires that, at a minimum, water designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs contained in the California Code of Regulations.

C. Effluent and receiving water temperature. This is both a concern for application of certain temperature sensitive constituents, such as fluoride, and for compliance with the Basin Plan's thermal discharge requirements.

D. Effluent and receiving water hardness and pH. These are necessary because several of the CTR constituents are hardness or pH dependent.

E. Receiving water flow is needed to determine possible dilution available in the receiving water. The receiving water flows, in combination with the receiving water pollutant concentrations, will be used to determine if there is assimilative capacity in the receiving water for each pollutant, and whether dilution credits can be granted. Dilution credits can increase the concentrations of pollutants allowed in your effluent discharge if assimilative capacity is available in the receiving water.

Pursuant to Section 13267 of the California Water Code, you are required to submit monitoring data for your effluent and receiving water as described in Attachments I through IV.

Attachment I – Sampling frequency and number of samples.

Attachment II – Constituents to be monitored. This list identifies the constituents to be monitored. It is organized into groupings (Volatile Organics, Semi-Volatile Organics, Inorganics, Pesticides/Polychlorinated Biphenyls (PCBs), Other Constituents, and Discharge & Receiving Water Flows), which correspond to groupings in Attachment I. Also listed are the Controlling Water Quality Criteria and their concentrations. The criteria concentrations are compiled in the Central Valley Regional Water Board's staff report, *A Compilation of Water Quality Goals.*[1] Minimum quantitation levels for the analysis of the listed constituents will be equal to or less than the Minimum Levels (ML) listed in Appendix 4 of the SIP or the Detection Limits for Reporting Purposes (DLRs) published by the Department of Health Services which are below the controlling water quality criteria concentrations listed in Attachment II of this letter. In cases where the controlling water quality criteria concentrations are below the detection limits of all approved analytical methods, the best available procedure will be utilized that meets the lowest of the MLs and DLR. Also listed are suggested analytical procedures. You are not required to use these specific procedures as long as the procedure you select achieves the desired minimum detection level. All analyses must be performed by a California certified environmental analytical laboratory.

Attachment III – Dioxin and furan sampling. Section 3 of the SIP has specific requirements for the collection of samples for analysis of dioxin and furan congeners, which are detailed in Attachment III. Briefly, dischargers classified as major must collect and analyze two samples per year (one

collected in the wet season and one collected in the dry season) for congeners in each of the next three years. For dischargers classified as minor, one wet season and one dry season sample must be collected and analyzed at some time during the next three years.

Attachment IV – Reporting Requirements. This attachment provides laboratory and reporting requirements including a recommended data reporting format.

With the exception of dioxin and furan congener sampling which is due by **1 November 2004** (see Attachment III), all samples shall be collected, analyses completed, and monitoring data shall be submitted to the Regional Board by **1 March 2003**. Any NPDES permit application submitted after **1 March 2002** shall include with the application at least one set of data for the constituents listed in Attachment II.

In the interest of generating and submitting data by the required dates, a schedule for compliance with this data request shall be prepared and submitted to the Executive Officer by **16 November 2001**. This schedule shall include the requirements of Attachment I and Attachment III. The schedule will also include the data submission requirements for applications submitted after **1 March 2002**.

Failure or refusal to submit technical or monitoring data as required by Section 13267, California Water Code, or falsifying any information provided is guilty of a misdemeanor and is subject to an administrative civil liability of up to $1,000 per day of violation, in accordance with Section 13268, California Water Code.[i]

If you have any questions, please contact your Regional Board staff representative.

GARY M. CARLTON
Executive Officer

Attachments (4)

[i] Available on the internet at http://www.swrcb.ca.gov/rwqcb5/wq_goals.

ATTACHMENT D1

Attachment I – Sampling Frequency and Number of Samples (Major Industrial)

Samples shall be collected from the effluent and upstream receiving water and analyzed for the constituents listed in Attachment II to provide the indicated number of valid sample results by the submittal due date. Sampling frequency shall be adjusted so that the appropriate number of samples is collected by the due date and so that the sampling is representative of the wastewater discharge.

Constituent/Sample Type[ii]	Frequency	Timeframe (years)	Total Number of Samples
Volatile Organics/grab	Quarterly	1	4
Semi-Volatile Organics/grab or composite	Quarterly	1	4
Inorganics/grab or composite	Monthly	1	12
Pesticides[iii] & PCBs/grab or composite	Quarterly	1	4
Other Constituents[iv]/grab or composite	Monthly	1	12
Discharge & Receiving Water Flow[v]	Weekly (plus when year 2 & 3 dioxin samples are taken)	1 (2)	52 (4)
Dioxins/grab or composite	Semi-annual	3	6

[ii] The effluent sampling station and the upstream receiving water station specified in the NPDES Permit Monitoring and Reporting Program should be used.

[iii] OP pesticides (diazinon, chlorpyrifos) are not required of industrial facilities.

[iv] See list in Attachment II.

[v] Discharge and Receiving Water Flow. Discharge flow should be recorded and reported for each day of sample collection. All NPDES dischargers should have a means of measuring the volume of discharge as part of their monitoring already required by the NPDES Permit Monitoring and Reporting Program. Receiving Water Flow, however, is not generally required by NPDES Permit Monitoring Programs. For facilities that already conduct receiving water flow monitoring, the receiving water flow should be recorded and reported for each day in which sampling occurs. For facilities that do not routinely conduct receiving water flow monitoring, provide the best estimate of flow reasonably obtainable. It may be possible to obtain flow data from an existing nearby gauging station.

ATTACHMENT D3

Attachment III -Dioxin and Furan Sampling

Section 3 of the State Implementation Plan requires that each NPDES discharger conduct sampling and analysis of dioxin and dibenzofuran congeners. The required number and frequency of sampling are as follows:

- Major NPDES Dischargers – once during dry weather and once during wet weather for each of three years, for a total of six samples.
- Minor NPDES Dischargers – once during dry weather and once during wet weather for one year during the three-year period, for a total of two samples.

Each sample shall be analyzed for the seventeen congeners listed in the table below. High Resolution GCMS Method 8290, or another method capable of individually quantifying the congeners to an equivalent detection level, shall be used for the analyses.

Sampling shall start during winter 2001/2002 and all analyses shall be completed and submitted by 1 November 2004. Sample results shall be submitted along with routine monitoring reports as soon as the laboratory results are available.

For each sample the discharger shall report:

- The measured or estimated concentration of each of the seventeen congeners
- The quantifiable limit of the test (as determined by procedures in Section 2.4.3, No. 5 of the SIP)
- The Method Detection Level (MDL) for the test
- The TCDD equivalent concentration for each analysis calculated by multiplying the concentration of each congener by the Toxicity Equivalency Factor (TEF) in the following table, and summing the resultant products to determine the equivalent toxicity of the sample expressed as 2,3,7,8-TCDD.

Congener	TEF
2,3,7,8TetraCDD	1
1,2,3,7,8-PentaCDD	1.0
1,2,3,4,7,8-HexaCDD	0.1
1,2,3,6,7,8-HexaCDD	0.1
1,2,3,7,8,9-HexaCDD	0.1
1,2,3,4,6,7,8-HeptaCDD	0.01
OctaCDD	0.0001
2,3,7,8-TetraCDF	0.1
1,2,3,7,8-PentaCDF	0.05
2,3,4,7,8-PentaCDF	0.5
1,2,3,4,7,8-HexaCDF	0.1
1,2,3,6,7,8-HexaCDF	0.1
1,2,3,7,8,9-HexaCDF	0.1
2,3,4,6,7,8-HexaCDF	0.1
1,2,3,4,6,7,8-HeptaCDF	0.01
1,2,3,4,7,8,9-HeptaCDF	0.01
OctaCDF	0.0001

ATTACHMENT D4

Attachment IV – Reporting Requirements

1. **Laboratory Requirements**. The laboratory analyzing the monitoring samples shall be certified by the Department of Health Services in accordance with the provisions of Water Code Section 13176 and must include quality assurance/quality control data with their reports.

2. **Criterion Quantitation Limit (CQL)**. The criterion quantitation limits will be equal to or lower than the minimum levels (MLs) in Appendix 4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from http://www.swrcb.ca.gov/iswp/final.pdf) or the detection limits for purposes of reporting (DLRs) published by the Department of Health Services (http://www.dhs.ca.gov/ps/ddwem/chemicals/DLR/dlrindex.htm) which is below the controlling water quality criterion concentrations summarized in attachment II of this letter.

3. **Method Detection Limit (MDL)**. The method detection limit for the laboratory shall be determined by the procedure found in 40 Code of Federal Regulations (CFR) Part 136, Appendix B (revised as of May 14, 1999).

4. **Reporting Limit (RL).** The reporting limit for the laboratory. This is the lowest quantifiable concentration that the laboratory can determine. Ideally, the RL should be equal to or lower than the CQL to meet the purposes of this monitoring.

5. **Reporting Protocols**. The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

   a. Sample results greater than or equal to the reported RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
   b. Sample results less than the report RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.
   c. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory, if such information is available, may include numerical estimates of the data quantity for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
   d. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

6. **Data Format**. The monitoring report shall contain the following information for each pollutant:

   a. The name of the constituent.
   b. Sampling location.
   c. The date the sample was collected.
   d. The time the sample was collected.

e. The date the sample was analyzed. For organic analyses, the extraction date will also be indicated to assure that hold times are not exceeded for prepared samples.
f. The analytical method utilized.
g. The measured or estimated concentration.
h. The required Criterion Quantitation Limit (CQL).
i. The laboratory's current Method Detection Limit (MDL), as determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).
j. The laboratory's lowest reporting limit (RL).
k. Any additional comments.

6. **Example of Data Format**.

Discharger:_____ Name of Laboratory:_____
Contact Name:_____ Laboratory Contact:_____

Phone Number:_____ Phone Number:_____

Name of Constituent and CTR #	Sampling Location*	Date Sample Collected	Time Sample Collected	Date Sample Analyzed	USEPA Method Used	Analytical Results (ug/L)	CQL (ug/L)	MDL (ug/L)	RL (ug/L)	Comments
(See Attachment I										

*The effluent sampling station and the upstream receiving water station specified in the NPDES Permit Monitoring and Reporting Program should be used. Other sampling locations must be approved by Regional Board staff. Include longitude and latitude coordinates for the receiving water sampling stations.

ATTACHMENT E

Effluent limit for Copper using CTR Water Quality
Hardness-Dependent Values of the CCC (Chronic Criterion) and CMC (Acute Criterion)
for the Protection of Freshwater Aquatic Life

Copper expressed as total recoverable, µg/l						
Hardness (mg/l as $CaCO_3$)	CCC[1] 4-Day Avg (µg/l)	CMC[2] 1-hr Avg (µg/l)	LTA[3] (chronic) (µg/l)	LTA[4] (acute) (µg/l)	AMEL[5] (µg/l)[5]	MDEL[6] (µg/l)
<25	**Must calculate**	**Must calculate**	**Must calculate**	**Must calculate**	**Must calculate**	
25	**2.8**	**3.8**	**1.476**	**1.22**	**1.9**	**3.8**
43	**4.5**	**6.3**	**2.372**	**2.02**	**3.1**	**6.3**
50	**5.1**	**7.3**	**2.688**	**2.34**	**3.6**	**7.3**
75	**7.3**	**10.7**	**3.847**	**3.44**	**5.3**	**10.7**
100	**9.3**	**14.0**	**4.901**	**4.49**	**7.0**	**14**
110	**10.1**	**15.3**	**5.323**	**4.91**	**7.6**	**15.3**
117	**11**	**16**	**5.797**	**5.14**	**8.0**	**16**
120	**11**	**17**	**5.797**	**5.46**	**8.5**	**17**
130	**12**	**18**	**6.324**	**5.78**	**9.0**	**18**
140	**12**	**19**	**6.324**	**6.10**	**9.5**	**19**
150	**13**	**21**	**6.851**	**6.74**	**10.4**	**21**
160	**14**	**22**	**7.378**	**7.06**	**10.9**	**22**
170	**15**	**23**	**7.905**	**7.38**	**11.4**	**23**
180	**15**	**24**	**7.905**	**7.70**	**11.9**	**24**
190	**16**	**26**	**8.432**	**8.35**	**12.9**	**26**
200	**17**	**27**	**8.959**	**8.67**	**13.4**	**27**
210	**18**	**28**	**9.486**	**8.99**	**13.9**	**28**
220	**18**	**29**	**9.486**	**9.31**	**14.4**	**29**
240	**20**	**32**	**10.540**	**10.27**	**15.9**	**32**
246	**20**	**33**	**10.540**	**10.59**	**16.3**	**32.8**
250	**20**	**33**	**10.540**	**10.59**	**16.3**	**32.8**
270	**21.8**	**35.7**	**11.482**	**11.46**	**17.8**	**35.6**
280	**22.5**	**36.9**	**11.851**	**11.84**	**18.4**	**36.8**

The effluent limit has been calculated per established procedures described in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP):

[1]CCC (4-day average) = e{0.8545[ln(hardness)] – 1.702}
[2]CMC (1-hr average) = e{0.9422[ln(hardness)] – 1.700}
[3]LTA_c (Long-Term Average chronic) = CCC x 0.527
[4]LTA_a (Long-Term Average acute) = CMC x 0.321
[5]AMEL (Average monthly effluent limitation**) = LTA (lowest) x 1.55**
[6]MDEL (Maximum Daily effluent limitation**) = LTA (lowest) x 3.11**

ATTACHMENT F

Effluent limit for Lead using CTR Water Quality
Hardness-Dependent Values of the CCC (Chronic Criterion) and CMC (Acute Criterion)
for the Protection of Freshwater Aquatic Life

Lead expressed as total recoverable, µg/l						
Hardness (mg/l as $CaCO_3$)	CCC[1] 4-Day Avg (µg/l)	CMC[2] 1-hr Avg (µg/l)	LTA[3] (chronic) (µg/l)	LTA[4] (acute) (µg/l)	AMEL[5] (µg/l)	MDEL[6] (µg/l)
<25	**Must calculate**	**Must calculate**	**Must calculate**	**Must calculate**	**Must calculate**	
25	**0.5**	**14**	**0.264**	**4.49**	**0.4**	**0.8**
43	**1.1**	**28**	**0.579**	**8.99**	**0.9**	**1.8**
50	**1.3**	**34**	**0.685**	**10.9**	**1.1**	**2.1**
75	**2.2**	**57**	**1.16**	**18.3**	**1.8**	**3.6**
100	**3.2**	**82**	**1.69**	**26.3**	**2.6**	**5.3**
110	**3.6**	**92**	**1.90**	**29.5**	**2.9**	**5.9**
120	**4.0**	**103**	**2.11**	**33.1**	**3.3**	**6.6**
130	**4.4**	**114**	**2.32**	**36.6**	**3.6**	**7.2**
140	**4.9**	**125**	**2.58**	**40.1**	**4.0**	**8.0**
150	**5.3**	**137**	**2.79**	**44.0**	**4.3**	**8.7**
160	**5.8**	**149**	**3.06**	**47.8**	**4.7**	**9.5**
170	**6.3**	**160**	**3.32**	**51.4**	**5.1**	**10.3**
180	**6.7**	**173**	**3.53**	**55.5**	**5.5**	**11.0**
190	**7.2**	**185**	**3.79**	**59.4**	**5.9**	**11.8**
200	**7.7**	**197**	**4.06**	**63.2**	**6.3**	**12.6**
210	**8.2**	**210**	**4.32**	**67.4**	**6.7**	**13.4**
220	**8.7**	**223**	**4.58**	**71.6**	**7.1**	**14.2**
240	**9.7**	**249**	**5.11**	**79.9**	**7.9**	**15.9**
250	**10.2**	**262**	**5.38**	**84.1**	**8.3**	**16.7**
270	**11.3**	**289**	**5.96**	**92.8**	**9.2**	**18.5**
280	**11.8**	**303**	**6.22**	**97.3**	**9.6**	**19.3**

The effluent limit has been calculated per established procedures described in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP):

[1]CCC (4-day average) = e{1.273[ln(hardness)] – 4.705}
[2]CMC (1-hr average) = e{1.273[ln(hardness)] – 1.460}
[3]LTA_c (Long-Term Average chronic) = CCC x 0.527
[4]LTA_a (Long-Term Average acute) = CMC x 0.321
[5]AMEL (Average monthly effluent limitation**) = LTA (lowest) x 1.55**
[6]MDEL (Maximum Daily effluent limitation**) = LTA (lowest) x 3.11**

INFORMATION SHEET

GAYLORD CONTAINER CORPORATION
ANTIOCH PAPER AND PULP MILL
CONTRA COSTA COUNTY

Status of Permit

On 19 August 2002, Gaylord Container Corporation (Discharger) submitted a Report of Waste Discharge (RWD) and applied for a permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from its Antioch Paper and Pulp Mill's existing electricity generating facility (power plant). Supplemental information to complete filing of the application included: 1) 1992 Hydrologic study for the development of Gaylord water supply wells (2 March 1992), 2) biocides and boiler water chemicals for 2001 (6 November 2001), 3) Priority Pollutants analyses of the receiving water and wells (3 December 2001). 4) additional Priority Pollutants analyses of the receiving water (February thru September 2002), 5) low volume wastewater streams (reverse osmosis concentrate) analyses (3 December 2002), and 6) amendment to RWD indicating that low volume waste streams will be contained and segregated and not discharged to surface water (21 February 2003) under this Order.

Facility Description

Gaylord Container Corporation, Antioch Paper and Pulp Mill owns and used to operate two paper mills, both at the same site, approximately 2 miles East of downtown Antioch on Wilbur Avenue. The mills were referred to individually as the East and West Plant. The East Plant used to produce pulp and linerboard from waste wood using bleached Kraft process. The East Plant used to discharge to the San Joaquin River via outfall 001, but has been shutdown permanently and has not discharged since 28 February 1991. The West Plant was discharging wastewater to the San Joaquin River via outfall 002 up until 20 September 2002, when the Mill permanently ceased all papermaking activities and related discharges from the wastewater treatment plant, including reclamation and treatment of approximately 50,000 gallons per day of GWF Power System's blowdown water.

The West Plant used recycled fiber as raw materials and produced on a monthly average approximately 1,200 tons per day (tpd) of Gaylord's Encorliner, which was used throughout the country in the production of a wide variety of corrugated containers. The West Plant had a maximum production capacity of 1500 tpd of Gaylord's Encorliner. Normal machine operations called for the production of 24 hours a day, 7 days a week. The paper-making process required so much steam and electrical energy that Gaylord's Antioch Paper and Pulp Mill operated its own power plant. Gaylord will continue to operate its power plant and continue to discharge to the San Joaquin River (outfall 002) non contact one pass-through cooling water. Electrical power is generated by two turbines, one fired by natural gas, the other driven by steam. Exhaust heat from the Gas turbine is boosted to 1200-1400 ^{0}F by natural gas burners and used to make steam. Generated electricity will be sold to an energy supplier that in the past has been Pacific Gas and Electric. Water supply for the power plant consists of water drawn from the San Joaquin River and water bought from Contra Costa Water District from the Contra Costa canal that would have other wise entered the San Joaquin River before it was diverted. The mix of water sources is adjusted

according to the mineral content of each source. Domestic waste is treated and disposed on-site via a septic tank and leachfield system.

The Power Plant has the capacity to discharge a maximum of 15 mgd of non-contact one pass-through cooling water. All other related wastewater from the power plant (boiler blowdown, reverse osmosis concentrate and other low volume waste streams) will be contained and properly disposed off-site. The low volume waste streams may be evaporated and concentrated in on-site tankage prior to off-site disposal.

Description of Discharge

Non-contact turbine condenser cooling water is discharged to the San Joaquin River, a water of the United States at the point, latitude 38° 00' 44", longitude 121° 46' 03" (outfall 002).

Existing discharge specifications and water quality data for the Power Plant are as follows:

Maximum Discharge Flow	15.0 million gallons per day (mgd)
Average Temperature	93°F summer; 72°F winter (year 2000)
Highest Temperature	100°F summer; 82°F winter (year 2000)

Constituent	Concentration
Electrical Conductivity @ 25°C	9770[1] µmhos/cm
TDS	1500[2] mg/l
Nitrogen Ammonia	0.26[2] mg/l
pH	(6.5 – 8.1)[1] pH units
Nitrate as (N)	0.62[1] mg/l
Aluminum (total)	1330[2] µg/l
Iron (total)	2400[2] µg/l
Manganese (total)	59[2] µg/l
Chloride	700[2] mg/l
Sulfate	110[2] mg/l
Copper (total)	6.2[1] µg/l
Lead (total)	1.21[1] µg/l
Mercury (total)	0.0265[2] µg/l
Selenium (total)	10.8[2] µg/l
Zinc (total)	25[1] µg/l
Cyanide	23[2] µg/l

1 Used SJ River 1998-2002 data.
2 Used SJ River results from 2002 data only.

Receiving Water

San Joaquin River

The San Joaquin River Basin covers over 15,000 square miles, and includes the entire drainage area to the San Joaquin River. Most of the valley floor is agricultural land, with an agricultural history dating to the 1870's. The San Joaquin River originates from the Sierra Nevada Mountain Range and flows through the northern portion of the San Joaquin Valley to its terminus in the Sacramento-San Joaquin Bay estuary. The River extends approximately 134 miles from Friant Dam to Stevenson where flows are intermittent, and from Stevenson to Vernalis, approximately 60 miles, where flows are perennial. Runoff from rain events occurring in the San Joaquin Valley provide short-term increases in River flows. River flow during the summer is primarily composed of dam releases of snow-melt water for agricultural, urban, recreational and wildlife purposes, and agricultural wastewater. At the point of discharge from Gaylord Container Corporation (outfall 002), the San Joaquin River is within the boundary of the Sacramento San Joaquin River Delta (hereafter Delta).

The San Joaquin River in the vicinity of the cooling water discharge point, outfall 002, is strongly influenced by both tidal and river flows. The magnitude of tidal influence in the area fluctuates with gravitational influences (solar and lunar) and with freshwater outflow from the Delta. Freshwater outflow varies seasonally as well as in extended cycles. Low levels of inflow are considered to be 3.5 to 5 million cubic feet per second (cfs), while higher levels may range from 7.5 to 15 million cfs. Water diversions by the State Water Project (SWP) and the Central Valley Project (CVP) have had increasingly pronounced effects on freshwater outflows in the Delta, especially during years with below average precipitation. Salinity levels in the vicinity of the discharge point increase under such conditions. Saltwater intrusion and influence in the area increases during periods of low freshwater flow. As more water is diverted from the San Joaquin River for human use, the zone of saltwater intrusion extends farther upstream. Prior to 1984, this zone, termed the transition, entrapment, or null zone, was typically located in Suisun Bay during much of the year (October through March). Since 1984, the transition zone has shifted more or less permanently to the channels of the Sacramento and San Joaquin rivers.

Beneficial Uses

The Regional Board adopted a Water Quality Control Plan; Fourth Edition, for the Sacramento River and San Joaquin River Basins (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. The requirements in this Order implement the Basin Plan. The Basin Plan at page II-1.00 states that: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning*".

The beneficial uses of the Sacramento–San Joaquin River Delta (which includes the San Joaquin River section at the point of discharge), as defined in the Basin Plan, include: municipal and domestic water supply (MUN), irrigation and stock watering (AGR), industry process (PRO) and service supply (IND), contact (REC-1) and non-contact (REC-2) water recreation, freshwater habitat for both warm (WARM) and cold water species (COLD), serves as migration (MIGR)

waters for three warm water species (striped bass, sturgeon, and shad) and two cold freshwater species (salmon and steelhead), allows for spawning of three warm water species (striped bass, sturgeon, and shad) (SPWN), serves as wildlife habitat (WILD), and allows for navigation (NAV).

Dissolved Oxygen

The Basin Plan at page III-5.00 states that "*Within the legal boundaries of the Delta, the dissolved oxygen concentration shall not be reduced below: 7.0 mg/l in the Sacramento River (below the I Street Bridge) and in all Delta waters west of the Antioch Bridge; ……..".* The Discharger's effluent enters the San Joaquin River at a location within the Delta and west of the Antioch Bridge and therefore this Order applies a 7.0 mg/l as the receiving water limit for DO in the San Joaquin River.

Temperature

Thermal water quality objectives for the San Joaquin River are outlined in the *Water Quality Control Plan for Control of Temperature in Coastal Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan), last amended by the State Water Resources Control Board (State Board) on 18 September 1975. Based on the water body definitions in the plan, the San Joaquin River near the discharge point is included as an estuary (waters extending from a bay or the open ocean to the upstream limit of tidal action). For Estuaries, the Thermal Plan provides:

"5. Estuaries

A. Existing discharges

(1) Elevated temperature waste discharges shall comply with the following:

a. The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F.

b. Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of a main river channel at any point.

c. No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.

d. Additional limitations shall be imposed when necessary to assure protection of beneficial uses.

(2) Thermal waste discharges shall comply with the provisions of 5A (1) above and, in addition, the maximum temperature of thermal waste discharges shall not exceed 86°F."

Section 316(a) of the CWA and 40 CFR Section 125.73 provide that thermal discharge effluent limitations or standards established in permits may be less stringent than those required by applicable standards and limitations if the discharger demonstrates to the satisfaction of the permitting authority that such effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish, and wildlife in and on the body of water into which the discharge is made. This demonstration must show that the alternative effluent limitation desired by the discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of this balanced indigenous community of shellfish, fish and wildlife.

The Thermal Plan also states that:

Regional Boards may, in accordance with Section 316(a) of the Federal Water Pollution Control Act of 1972, and subsequent federal regulations including 40 CFR 122, grant an exception to Specific Water Quality Objectives in this Plan. Prior to becoming effective, such exceptions and alternative less stringent requirements must receive the concurrence of the State Board.

In accordance with provisions of the State Thermal Plan, the previous owner/operator, Crown Zellerbach Corporation requested by letter, dated 14 January 1975, that the Antioch Paper and Pulp Mill be granted a relaxation of specific water quality objectives 5.A.(1)a and 5.A.(2) of the Thermal Plan. A study in support of its request pursuant to 40 CFR 122 was submitted to the Regional Board. The study supplied biological and engineering information. On 22 October 1976 the Regional Board, in Resolution No. 76-218 granted a relaxation to specific water quality objectives 5.A.(1)a and 5.A.(2), thereby allowing a maximum effluent temperature differential limitation of 45 ^{o}F (25^{o}C) during November through May; 35 ^{o}F (19^{o}C) during June and October; and 30^{o}F (16.7^{o}C) during July, August, and September. In addition, the maximum effluent temperature was increased from 86^{o}F (30^{o}C) to 105 ^{o}F (40.5^{o}C). The State Board and USEPA subsequently concurred with these revised limitations. At this time as in previous order No. 97-027, and since the main contributor of the elevated temperature discharge continues to be the non-contact cooling water, the Regional Board finds that Thermal Plan water quality 5.A.(1)a and 5.A.(2) are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish, and wildlife in an on the body of water into which the discharge is made. This Order includes alternative effluent and receiving water limitations less stringent than the Thermal Plan, and on 25 April 2003, the Regional Board adopted Resolution No. R5-2003-0069 granting a continued exception to the Thermal Plan. The State Board and USEPA will have an opportunity to review this continued exception to the thermal plan and may accept or object to the Regional Board's Resolution. The Resolution incorporated the same maximum effluent limitations as in the original Resolution No. 76-218.

Dilution Study

The San Joaquin River at the outfall 002 location is approximately 2000 feet wide, is tidally influenced but with low salinities (less than 0.3 parts per thousand), and is assumed to be well mixed. The outfall starts at a point approximately 135 feet from the shoreline of the river and terminates in a 117 foot-long diffuser section about 250 feet from the shoreline. In May 1992, Gaylord Container Corporation submitted a technical report defining the 30-day average hydrologic dilution ratio in the San Joaquin River, taking into account the tidal and seasonal dynamics of the area, within a 300-foot radius of the outfall 002. Two EPA numerical models were used in the dilution study: 1) UDKHDEN, to calculate "initial dilution", the rapid mixing that occurs during the period that the buoyancy and momentum of the plume are dominant dilution factors, and 2) CDIFF, to determine "subsequent dilution", which occurs after initial dilution and is driven largely by turbulent diffusion processes. These models were based on existing data of the outfall configuration, receiving water conditions, and effluent characteristics. The model input was based on conservative flow conditions to determine dilutions under a worst-case scenario for receiving water conditions. Three river current speed conditions were investigated (slack low tide with low river flow, 0.08 ft/sec; slack high tide with low river flow, 0.18 ft/sec' and maximum current velocity, 1.8 ft/sec) under two river water density extremes, high density (0.9995 gm/cm^3) and low density (0.9986 gm/cm^3). The study resulted in the discharge having a final effluent dilution of 109:1 for low density and 121:1 for high density, which would only be applicable when background concentrations in the San Joaquin River are below water quality standards.

Three Species Chronic Toxicity

The Discharger conducted 7-day chronic toxicity tests with *Ceriodaphnia dubia* and the larval *Pimephales promelas* in 1990 (EA Engineering/Aqua Terra Technologies) and 1992 (MEC Analytical Systems, Inc.) to comply with a previous permit requirement. The submitted reports indicated that the significant effect observed on the survival of *Ceriodaphnia dubia* was due to salinity in the ambient water. However, the 1992 report also indicated that for the test series using effluent diluted with control water, the effect on reproduction in *Ceriodaphnia dubia* was probably due to a toxicant other than salinity, and that there appears to be other toxicants in both effluent and ambient water that can affect these organisms. Since the previous toxicity tests were conducted using a combined effluent of treated wastewater from the paper making processes and non-contact cooling water, additional testing will need to be conducted to evaluate toxicity solely from the non-contact cooling water. USEPA has recently published newly promulgated Toxicity test methods with an effective date of 19 December 2002 which requires the use of dilution series. Therefore, the Discharger will be required in the Monitoring and Reporting Program to routinely perform three species toxicity testing on the effluent to determine if their effluent causes toxicity. The three species chronic toxicity test will be conducted using the species *Ceriodaphnia dubia*, *Pimephales promelas*, and *Selenastrum capricornutum* (4th edition EPA/821-R-02-013). However, if the levels of salinity in the effluent are greater than 5ppt or Electrical Conductivity is greater than 8750 µmhos/cm, or when TDS levels are greater than 5,600 mg/l, then the discharger may use a combination of estuarine and freshwater species, namely *Mysidopsis bahia* (3rd edition EPA/821-R-02-014), *Pimephales promelas* and *Selenastrum capricornutum* (4th edition EPA/821-R-02-013). The freshwater species may also be substituted if the source of any toxicity is determined, by a TIE, to be salinity related

Permit Effluent Limitations

Clean Water Act Section 301 (b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include Regional Board Basin Plan beneficial uses and narrative and numeric water quality objectives, SWRCB-adopted standards, and federal standards, including the California Toxics Rule (CTR) and National Toxics Rule (NTR). The Basin Plan contains numeric water quality objectives and contains a narrative toxicity objective that states: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." (Basin Plan at III-8.00.) For determining whether there is reasonable potential for an excursion above a narrative objective, the regulations prescribe three discrete methods (40 CFR 122.44 (d)(vi)). The Regional Board often relies on the second method because the USEPA's water quality criteria have been developed using methodologies that are subject to public review, as are the individual recommended criteria guidance documents. USEPA's ambient water quality criteria are used as means of supplementing the integrated approach to toxics control, and in some cases deriving numeric limitations to protect receiving waters from toxicity as required in the Basin Plan's narrative toxicity objective. In addition, when determining effluent limitations for a discharger, the dilution of the effluent in the receiving water may be considered where areas of dilution are defined. However, when a receiving water is impaired by a particular pollutant or stressor, limited or no pollutant assimilative capacity may be available in spite of the available dilution. In these instances, and depending upon the nature of the pollutant, effluent limitations may be set equal to or less than the applicable water quality standard which are applied at the point of discharge such that the discharge will not cause or contribute to the receiving stream exceedance of water quality standards established to protect the beneficial uses.

Section 1.3 of the SIP requires the Regional Board to follow specific procedures for each priority pollutant with an applicable criterion or objective to determine if a water quality based effluent limitation is required. In evaluating compliance with the CTR and SIP for this new Order, Regional Board staff utilized ambient surface water quality data submitted by the Discharger and from the San Francisco Regional Monitoring Program (SFRMP) conducted under the oversight of the San Francisco Bay Regional Water Quality Control Board. Monitoring data evaluated came from SFRMP Station BG30, located approximately 3 miles downstream of Gaylord's outfall 002 in the San Joaquin River, at latitude 38^{o} 01.40' and longitude 121^{o} 48.45', at a depth of 7 meters, and 0.1 nautical miles east of channel marker "8". **Attachment C** summarizes receiving water data, maximum effluent concentrations (MECs) and includes aquatic life and human health criteria and Basin Plan objectives for each priority pollutant and other constituents.

In addition, on 10 September 2001 the Executive Officer issued a letter, in conformance with State Water Code, Section 13267, requiring the Discharger to prepare a technical report assessing effluent and receiving water quality. A copy of that letter, including its attachments is incorporated into this Order as **Attachments D through D-4**. A provision contained in this Order is intended to be consistent with the requirements of the technical report (**Attachment D**) in requiring sampling for

NTR, CTR, and additional constituents to determine if the discharge has a reasonable potential to cause or contribute to water quality impacts.

Furthermore, according to Section 1.4.4 of the SIP, the Regional Board can allow for Intake Water Credits on a pollutant by pollutant and discharge by discharge basis when establishing water quality based effluent limitations, provided certain conditions are met. The Discharger clearly meets such conditions for the intake water from the San Joaquin River. The Contra Costa Canal water is also being considered for intake credits because had it not been diverted it would otherwise have entered the San Joaquin River. In addition, when Contra Costa canal water is used instead of the San Joaquin River it is because it is of better quality than the San Joaquin River intake water. Therefore in establishing effluent limitations, the Discharger is allowed to discharge a mass and concentration of the intake water pollutant that is no greater than the mass and concentration simultaneously found in the facility's intake water. However, no intake credit can be allowed from a groundwater supply source because this source does not qualify for intake credits. Furthermore, no side stream discharges are allowed, such as boiler blowdown or reverse osmosis concentrate, since these additions would add concentration of constituents to the discharge.

Based on the available information the following effluent limitations were included in this Order:

Technology Based

Technology-based treatment requirements under section 301 (b) of the CWA represent the minimum level of control that must be imposed in a permit issued under section 402 of the CWA. Regulations promulgated at 40 CFR 122.44 (a) require technology-based effluent limitations to be placed in NPDES permits based on national effluent limitations guidelines and standards, best professional judgement (BPJ), or a combination of the two. National effluent limitation guidelines for Steam Electric Power Generating Point Source Category are contained in 40 CFR 423. However, since Gaylord's effluent consists only of non-contact once through cooling water, based on these guidelines no technology-based effluent limitations are applicable and thus not included in this Order.

Water Quality Based

Aluminum

Aluminum concentrations in the effluent were based on the maximum San Joaquin River concentrations. Aluminum was detected in the San Joaquin River with a maximum concentration of 1330 µg/l on a sample taken in May 2002. The Primary and Secondary MCLs for aluminum are 1000 µg/l and 200 µg/l respectively. USEPA's ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum expressed as total recoverable are 750 µg/l (1-hour average, acute) and 87 µg/l (4-day average, chronic). This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts and USEPA's criteria for prevention of acute and chronic toxicity are numerical criteria, which are protective of the Basin Plan's narrative toxicity objective. Since both the receiving water and the effluent exceed USEPA's ambient water quality criteria of chronic toxicity, and the secondary MCL, no dilution can be granted and the effluent has the reasonable potential to cause or

contribute to an in-stream excursion above water quality criteria for aluminum. Therefore, this Order includes an effluent limitation for Aluminum of 87 µg/l as a 4-day average and 750 µg/l as the daily maximum. However, at times when the influent San Joaquin River water concentration of aluminum is above the USEPA's ambient water quality criteria, then these requirements establish the effluent limitation equal to the detected concentration and mass (plus 10% to account for timing, sampling, and analysis variability) and mass of aluminum in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of aluminum, concurrent monitoring of the intake receiving water (San Joaquin River water and if used Contra Costa canal water) and effluent will be required. In addition, if the Discharger believes the toxicity aluminum criteria is not applicable for the San Joaquin River, they can request the development of site specific criteria based on a water effect ratio or develop a translator that would take into account less toxic forms of aluminum. In either case, the Discharger will need to submit all the necessary technical information in order to support such a change.

Electrical Conductivity/Total Dissolved Solids

EC and TDS concentrations in the effluent were based on the maximum San Joaquin River concentrations. Data from SFRMP Station BG30 show that EC levels in the San Joaquin River ranged from 110-9770 µmhos/cm between 1993 and 1999. Additional data from samples taken by the discharger between 1998 and 2002 show that TDS concentrations in the San Joaquin River ranged between 140 and 1500 mg/l. Although the Sacramento–San Joaquin Delta has been listed as an impaired waterbody pursuant to Section 303(d) of the Clean Water Act due to EC, the section impaired by EC only applies to 16,000 acres out of a total of 48,000 acres, known as the South Delta. The South Delta does not include the section of the San Joaquin (SJ) River in the vicinity of the discharge. For EC (TDS), the secondary MCL recommended range is 900 µmhos/cm (500 mg/l), the upper range is 1600 µmhos/cm (1000 mg/l) and the short term range is 2200 µmhos/cm (1500 mg/l). The Agricultural Water Quality Goal is 700 µmhos/cm for EC and 450 mg/l for TDS. However more restrictive water quality objectives for the protection of agricultural uses are included in Table 2 of the 1995 Bay Delta Plan (incorporated as table III-5B in the Basin Plan), the most restrictive being the maximum 14-day running average of mean daily for EC in the San Joaquin River at Jersey Point set at 450 µmhos/cm between 1 April and 20 June. The SJ River in the Antioch area is a mixture of freshwater and saltwater at various times of the year. This area of the River is brackish due to its proximity with the San Francisco Bay, tidal influence, and during most of the year a lack of freshwater outflow to mitigate saltwater intrusion. Since at times both the receiving water and the effluent exceed the Basin Plan objective for EC and the agricultural water quality goal for EC and TDS, no dilution can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above a water quality criteria for EC and TDS. Therefore, this Order includes an effluent limitation for EC of 450 µmhos/cm between April and June and 700 µmhos/cm between July and March as monthly averages and for TDS an effluent limitation of 450 mg/l also as a monthly average. However, at those times when the San Joaquin River is primarily saltwater, discharges of EC and TDS in concentrations equal to the concentration in the San Joaquin River should not cause a significant water quality impact to native species and beneficial uses. Furthermore, at times when the influent San Joaquin River water concentration of EC and TDS exceed the effluent limitations, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10% to account for timing,

sampling, and analysis variability) of EC and TDS in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of EC and TDS, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

Chloride

Chloride concentrations in the effluent were based on the maximum San Joaquin River concentrations. There were no data from station BG30 on chlorides. Samples taken by the discharger between 1998 and 2002 show that chloride concentrations in the San Joaquin River ranged from 16-700 mg/l. The secondary MCL recommended range for chloride is 250 mg/l, the upper range is 500 mg/l, and the short term range is 600 mg/l. USEPA's National Ambient Water Quality Criteria for chloride for the Protection of Freshwater Aquatic Life is 230 mg/l, as a 4-day average, and 860 mg/l as a 1-hour average. The 1995 Bay Delta Plan Table 1 (incorporated as table III-5A in the Basin Plan) includes a water quality objective for chloride in the San Joaquin River at the Antioch Waterworks intake of 150 mg/l. The Agricultural Water Quality goal for chloride is 106 mg/l, but because there is a site-specific Basin Plan objective of 150 mg/l, this becomes the applicable standard. Since both the receiving water and the effluent exceed the site specific Basin Plan objective, the secondary MCL, and the USEPA ambient water quality chronic criterion, no dilution can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above water quality criteria for chloride. Therefore, this Order includes an effluent limitation for chloride of 150 mg/l as a monthly average and 860 mg/l as a daily maximum. However, at those times when the influent San Joaquin River water concentration of chloride exceeds the effluent limitations, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10% to account for timing, sampling, and analysis variability) of chloride in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of chloride, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

Iron

Iron concentrations in the effluent were based on the maximum San Joaquin River concentrations. Background concentrations in the San Joaquin River ranged from 440-2400 µg/l based on results from samples collected between 1998 and 2002. The Basin Plan includes a site-specific (San Joaquin River within the Delta) receiving water objective for iron of 300 µg/l. The secondary MCL for iron is also 300 µg/l Since both the receiving water and the effluent exceed the site specific Basin Plan objective and secondary MCL, no dilution can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above water quality criteria for iron. Therefore, this Order includes an effluent limitation for iron of 300 µg/l as a monthly average. However, at those times when the influent San Joaquin River water concentration of iron exceeds the effluent limitation, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10 % to account for timing, sampling, and analysis variability) of iron in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and

to be given intake credits for background amounts of iron, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

Manganese

Manganese concentrations in the effluent were based on the maximum San Joaquin River concentrations. It was calculated to be a maximum of 57.3 µg/l based on results from samples collected in 2002. Background concentrations in the San Joaquin River ranged from 14-59 µg/l based on results from samples collected between 1997 and 2002. The Basin Plan includes a site-specific receiving water objective for manganese of 50 µg/l. The secondary MCL for manganese is also 50 µg/l. Manganese naturally occurs in many waters but can also be introduced by industry. Manganese does not pose a health risk, the secondary MCL is established for the aesthetic quality of the water. Since both the receiving water and the effluent exceed the site specific Basin Plan objective and secondary MCL, no dilution can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above water quality criteria for manganese. Therefore, this Order includes an effluent limitation for manganese of 50 µg/l as a monthly average. However, at those times when the influent San Joaquin River water concentration of manganese exceeds the effluent limitation, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10 % to account for timing, sampling, and analysis variability) of manganese in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of manganese, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

Copper

Copper was based on the maximum San Joaquin River concentrations. Background concentrations in the San Joaquin River intake water were non detect (<10 µg/l from annual samples taken between 1998 and 2001. However, samples taken in 2002 showed that background concentration of total copper in the San Joaquin River ranged from 3.2 to 6.2 µg/l. In addition, the maximum background concentration for total copper at the San Joaquin River SFRMP Station BG30 was 5.31 µg/l, while the maximum dissolved concentration was 2.94 µg/l. The Basin Plan includes a site-specific receiving water objective for dissolved copper of 10 µg/l (independent of hardness). The CTR Water Quality Criteria for copper expressed as total concentrations for the protection of freshwater aquatic life for acute and chronic scenarios are 6.3 µg/l and 4.5 µg/l respectively based on the worst case receiving water hardness of 43 mg/l as $CaCO_3$. The CTR Water Quality Criteria for copper expressed as total concentrations (using conversion factor of 0.83) for the protection of saltwater aquatic life for acute and chronic scenarios are 5.8 µg/l and 3.7 µg/l respectively. Based on available data, both the receiving water and the effluent, at times, exceed the CTR water quality criteria for saltwater and freshwater aquatic life. Therefore, no dilution can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for both saltwater and freshwater species, saltwater criteria being the most stringent. This Order includes two effluent limitations for copper, one for the protection of saltwater aquatic life, and the other one for the protection of freshwater aquatic life. The effluent limitation for total copper for the protection of saltwater species is

set to 2.9 µg/l as a monthly average and 5.8 µg/l as a daily maximum, and is only applicable under saltwater conditions (when EC is greater than 8750 µmhos/cm). The effluent limitation for the protection of freshwater species is hardness dependent as shown in Attachment E. To determine compliance with this limitation, the applicable hardness will be that of the receiving water (San Joaquin River intake water). However, at those times when the influent San Joaquin River water concentrations of copper exceed the effluent limitation, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10 % to account for timing, sampling, and analysis variability) of copper in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of copper, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required. Analytical results for copper in the intake water are summarized below:

Sample Date	Cu in (San Joaquin River) (µg/l)	Sample Date	Cu in (San Joaquin River) (µg/l)
5/12/98	<10	4/2/02	3.7
4/23/99	<10	5/7/02	4.0
6/15/00	<10	6/4/02	3.6
7/12/01	<10	7/15/02	6.2
2/5/02	4.7	8/6/02	3.2
3/12/02	3.3	9/3/02	5.1

Calculating Effluent Limits:
Since the effluent is based on what the background concentrations are then,
(B = 6.2 µg/l and MEC = 6.2 µg/l as total copper concentrations)
Multipliers to calculate LTA, MDEL, and AMEL came from the State Implementation Policy (SIP) Tables 1 and 2.

Saltwater limitation:
No dilution can be allowed since both the effluent and background exceed criteria:
ECA (acute aquatic life) = 4.8 µg/l / 0.83 (conversion factor) = 5.8 µg/l (Total Copper)
ECA (chronic aquatic life) = 3.1 µg/l / 0.83 (conversion factor) = 3.7 µg/l (Total Copper)
Because of the number of data available, the applicable coefficient of variation is CV = 0.6
LTA = ECA x ECA multiplier (based on the CV value).
Therefore:
LTA (acute) = 5.8 x 0.321 = **1.86**
LTA (chronic) = 3.7 x 0.527 = 1.95

Choosing the lowest of the two, the effluent limitations are calculated as follows:
MDEL = Lowest LTA x MDEL multiplier (99 percentile)
AMEL = Lowest LTA x AMEL multiplier (95 percentile)
MDEL = 1.86 x 3.11 = **5.8** µg/l as Total Copper.
AMEL = 1.86 x 1.55 = **2.9** µg/l as Total Copper.

Therefore, the effluent limitations for the protection of saltwater species are 5.8 µg/l as the daily maximum and 2.9 µg/l as the monthly average, but are not applicable when background concentrations exceed these limitations and when EC levels are less than 8750 µmhos/cm.

Freshwater limitation:
No dilution can be allowed since the background exceeds criteria (under worst case condition of receiving water hardness of 43 mg/l):
ECA (acute aquatic life) = 6.3 µg/l (Total Copper)
ECA (chronic aquatic life) = 4.5 µg/l (Total Copper)
Because of the number of data available, the applicable coefficient of variation is CV = 0.6
LTA = ECA x ECA multiplier (based on the CV value)
Therefore:
LTA (acute) = 6.3 x 0.321 = **2.02**
LTA (chronic) = 4.5 x 0.527 = 2.37

Choosing the lowest of the two, the effluent limitations are calculated as follows:
MDEL = Lowest LTA x MDEL multiplier (99 percentile)
AMEL = Lowest LTA x AMEL multiplier (95 percentile)
MDEL = 2.02 x 3.11 = **6.3** µg/l as Total Copper.
AMEL = 2.02 x 1.55 = **3.1** µg/l as Total Copper.

Therefore, the effluent limitations for the protection of freshwater species under the worst case receiving water hardness of 43 mg/l are 6.3 µg/l as the daily maximum and 3.1 µg/l as the monthly average. However, since the criteria are dependent on hardness, then the effluent limitations will also change based on hardness. Attachment E has calculated limitations for monthly and daily maximums at different hardness values. To determine compliance with these limitations, the applicable hardness will be that of the receiving water (San Joaquin River intake water). However, these limitations will not be applicable when background concentrations exceed the limitations, instead intake credits will be considered.

Lead

Lead was based on the maximum San Joaquin River concentrations. Background concentrations in the San Joaquin River ranged from 0.2 to 0.7 µg/l from samples collected in 2002. However, data from the San Joaquin River SFRMP Station BG30 showed that the maximum background concentration for total lead was 1.21 µg/l. The CTR Water Quality Criteria for lead expressed as total recoverable concentrations (using conversion factor of 0.914) for the protection of freshwater aquatic life for acute and chronic scenarios are 28 µg/l and 1.1 µg/l respectively based on the worst case receiving water hardness of 43 mg/l as $CaCO_3$. The CTR Water Quality Criteria for lead expressed as total recoverable concentrations (using conversion factor of 0.951) for the protection of saltwater aquatic life for acute and chronic scenarios are 221 µg/l and 8.5 µg/l respectively. Based on available data, both the receiving water and the effluent, at times, exceed the CTR water quality criteria, then an effluent limitation is required and no dilution can be granted. Therefore, this Order includes hardness dependent effluent limitations for lead as shown in Attachment F based on the CTR criteria for the

protection of freshwater aquatic life. To determine compliance with this limitation, the applicable hardness will be that of the receiving water (San Joaquin River intake water). However, at those times when the influent San Joaquin River water concentrations of lead exceed the effluent limitation, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10% to account for timing, sampling, and analysis variability) of lead in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of lead, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

Calculating Effluent Limits:
Since the effluent is based on what the background concentrations are then
(B = 1.21 µg/l and MEC = 1.21 µg/l as total lead concentrations)
Multipliers to calculate LTA, MDEL, and AMEL came from the State Implementation Policy (SIP) Tables 1 and 2.

Freshwater limitation:
No dilution can be allowed since the background exceeds criteria (under worst case condition of receiving water hardness of 43 mg/l):
ECA (acute aquatic life) = 28 µg/l (Total Lead)
ECA (chronic aquatic life) = 1.1 µg/l (Total Lead)
Because of the number of data available, the applicable coefficient of variation is CV = 0.6
LTA = ECA x ECA multiplier (based on the CV value)
Therefore:
LTA (acute) = 28 x 0.321 = 8.99
LTA (chronic) = 1.1 x 0.527 = 0.58

Choosing the lowest of the two, the effluent limitations are calculated as follows:
MDEL = Lowest LTA x MDEL multiplier (99 percentile)
AMEL = Lowest LTA x AMEL multiplier (95 percentile)
MDEL = 0.58 x 3.11 = **1.8** µg/l as Total Lead.
AMEL = 0.58 x 1.55 = **0.9** µg/l as Total Lead.

Therefore, the effluent limitations for the protection of freshwater species under the worst case receiving water hardness of 43 mg/l are 1.8 µg/l as the daily maximum and 0.9 µg/l as the monthly average. However, since the criteria are dependent on hardness, then the effluent limitations will also change based on hardness. Attachment F includes calculated limitations for monthly and daily maximums at different hardness values. To determine compliance with these limitations, the applicable hardness will be that of the receiving water (San Joaquin River intake water). However, these limitations will not be applicable when background concentrations exceed the limitations, instead intake credits will be considered.

Selenium

Selenium was based on the maximum San Joaquin River concentrations. The maximum background concentration for total selenium at the San Joaquin River SFRMP Station BG30 was 0.43 µg/l. However, samples taken in 2002 showed that concentrations of total selenium in the San Joaquin River ranged from 0.5 to 10.8 µg/l. The CTR Water Quality Criteria for selenium expressed as total recoverable concentrations for the protection of freshwater aquatic life for acute and chronic scenarios are 20 µg/l and 5 µg/l respectively. The CTR Water Quality Criteria for selenium expressed as total recoverable concentrations (using conversion factor of 0.998) for the protection of saltwater aquatic life for acute and chronic scenarios are 291 µg/l and 71 µg/l respectively. Based on available data, both the receiving water and the effluent at times exceed the CTR water quality criteria for freshwater aquatic life. Therefore, no dilution can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for the protection of freshwater aquatic life. This Order includes effluent limitations for selenium, based on the CTR criteria for the protection of freshwater aquatic life of 8.2 µg/l as a daily maximum and 4.1 µg/l as a monthly average. However, at those times when the influent San Joaquin River water concentrations of selenium exceed the effluent limitation, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10% to account for timing, sampling, and analysis variability) of selenium in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of selenium, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

Calculating Effluent Limits:
Since the effluent is based on what the background concentrations are then,
(B = 10.8 µg/l, MEC = 10.8 µg/l, acute C = 20 µg/l, and chronic C = 5 µg/l as total selenium concentrations). Multipliers to calculate LTA, MDEL, and AMEL came from the State Implementation Policy (SIP) Tables 1 and 2.

Freshwater limitation:
No dilution is allowed since the background exceeds criteria.
ECA (acute aquatic life) = 20 µg/l (Total Selenium)
ECA (chronic aquatic life) = 5 µg/l (Total Selenium)
Because of the number of data available, the applicable coefficient of variation is CV = 0.6
LTA = ECA x ECA multiplier (based on the CV value).
Therefore:

LTA (acute) = 20 x 0.321 = 6.42
LTA (chronic) = 5 x 0.527 = **2.64**
Choosing the lowest of the two, the effluent limitations are calculated as follows:
MDEL = Lowest LTA x MDEL multiplier (99 percentile)
AMEL = Lowest LTA x AMEL multiplier (95 percentile)
MDEL = 2.64 x 3.11 = **8.2** µg/l as Total Selenium.
AMEL = 2.64 x 1.55 = **4.1** µg/l as Total Selenium.

Therefore, the effluent limitations for selenium for the protection of freshwater species are 8.2 µg/l as the daily maximum and 4.1 µg/l as the monthly average, but are not applicable when background concentrations exceed these limitations, instead intake credits will be considered.

Cyanide

Cyanide was based on the maximum San Joaquin River concentrations. Background concentrations for total cyanide in the San Joaquin River ranged from <5 to 23 µg/l from samples collected in 2002. The Basin Plan includes a site-specific receiving water objective for cyanide of 10 µg/l. The CTR Water Quality Criteria for cyanide expressed as total concentrations for the protection of freshwater aquatic life for acute and chronic scenarios are 22 µg/l and 5.2 µg/l respectively. The CTR Water Quality Criteria for cyanide expressed as total concentrations for the protection of saltwater aquatic life for acute and chronic scenarios are 1.0 µg/l and 1.0 µg/l respectively. Based on available data, both the receiving water and the effluent, at times, exceed the CTR water quality criteria for saltwater and freshwater aquatic life. Therefore, no dilution can be granted and the effluent has the reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for both saltwater and freshwater species, saltwater criteria being the most stringent. This Order includes two effluent limitations for cyanide, one for the protection of saltwater aquatic life, and the other one for the protection of freshwater aquatic life. The effluent limitation for total cyanide for the protection of saltwater species is set to 0.5 µg/l as a monthly average and 1.0 µg/l as a daily maximum, and is only applicable under saltwater conditions (when EC is greater than 8750 µmhos/cm). The effluent limitation for total cyanide for the protection of freshwater species is set to 4.2 µg/l as a monthly average and 8.5 µg/l as a daily maximum. However, at those times when the influent San Joaquin River water concentrations of cyanide exceed the effluent limitation, then these requirements establish the effluent limitation to be equal to the detected concentration and mass (plus 10% to account for timing, sampling, and analysis variability) of cyanide in the influent San Joaquin River water and if used, Contra Costa canal water. To determine compliance with this effluent limitation and to be given intake credits for background amounts of cyanide, concurrent monitoring of the intake receiving water (San Joaquin River water and Contra Costa canal water) and effluent will be required.

Calculating Effluent Limits:
Since the effluent is based on what the background concentrations are then,
(B = 23 µg/l, MEC = 23 µg/l, acute C = 22 µg/l, and chronic C = 5.2 µg/l, as total cyanide concentrations). Multipliers to calculate LTA, MDEL, and AMEL came from the State Implementation Policy (SIP) Tables 1 and 2.

Saltwater limitation:
No dilution can be allowed since the background exceed criteria:
ECA (acute aquatic life) = 1.0 µg/l (Total Cyanide)
ECA (chronic aquatic life) = 1.0 µg/l (Total Cyanide)
Because of the number of data available, the applicable coefficient of variation is CV = 0.6
LTA = ECA x ECA multiplier (based on the CV value).
Therefore:

LTA (acute) = 1.0 x 0.321 = **0.321**
LTA (chronic) = 1.0 x 0.527 = 0.527

Choosing the lowest of the two, the effluent limitations are calculated as follows:
MDEL = Lowest LTA x MDEL multiplier (99 percentile)
AMEL = Lowest LTA x AMEL multiplier (95 percentile)
MDEL = 0.321 x 3.11 = **1.0** µg/l as Total Cyanide.
AMEL = 0.321 x 1.55 = **0.5** µg/l as Total Cyanide.

Therefore, the effluent limitations for cyanide for the protection of saltwater species are 1.0 µg/l as the daily maximum and 0.5 µg/l as the monthly average, but are not applicable when background concentrations exceed these limitations and when EC levels are less than 8750 µmhos/cm.

Freshwater limitation:
No dilution is allowed since the background exceeds criteria.
ECA (acute aquatic life) = 22 µg/l (Total Cyanide)
ECA (chronic aquatic life) = 5.2 µg/l (Total Cyanide)
Because of the number of data available, the applicable coefficient of variation is CV = 0.6
LTA = ECA x ECA multiplier (based on the CV value).

Therefore:

LTA (acute) = 22 x 0.321 = 7.062
LTA (chronic) = 5.2 x 0.527 = **2.74**

Choosing the lowest of the two, the effluent limitations are calculated as follows:
MDEL = Lowest LTA x MDEL multiplier (99 percentile)
AMEL = Lowest LTA x AMEL multiplier (95 percentile)
MDEL = 2.74 x 3.11 = **8.5** µg/l as Total Cyanide.
AMEL = 2.74 x 1.55 = **4.2** µg/l as Total Cyanide.

Therefore, the effluent limitations for cyanide for the protection of freshwater species are 8.5 µg/l as the daily maximum and 4.2 µg/l as the monthly average, but are not applicable when background concentrations exceed these limitations, instead intake credits will be considered.

303 (d) Pesticides (Organochlorine and Organophosphate)

The Sacramento–San Joaquin Delta has been listed as an impaired waterbody pursuant to Section 303(d) of the Clean Water Act because of: (1) diazinon and chlorpyrifos (organophosphate pesticides), (2) Group A-organochlorine pesticides {aldrin, chlordane, dieldrin, endosulfan (alpha, beta, sulfate), endrin, endrin aldehyde, 4,4'DDT, heptachlor, heptachlor epoxide, hexachlorocyclohexane (alpha, beta, delta and lindane), and toxaphene}, and (3) unknown toxicity. The Basin Plan objectives regarding pesticides include:

a) no individual pesticides shall be present in concentrations that adversely affect beneficial uses,
b) discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affects beneficial uses,
c) total chlorinated hydrocarbon pesticide concentrations shall not be present in the water column at detectable concentrations, and
d) pesticide concentrations shall not exceed those allowable by applicable antidegradation policies.

Organophosphate pesticides, diazinon and chlorpyrifos, are commonly-used insecticides found in many domestic wastewater discharges at concentrations which can cause toxicity in both the effluent and in the receiving water. These pesticides are not expected to be found in industrial discharges. In addition, these pesticides are not "priority pollutants" and so are not part of the analytical methods routinely performed for NPDES discharges. The Discharger will not be required to monitor for diazinon or chlorpyrifos. The Basin Plan's requirement that persistent chlorinated hydrocarbon pesticides shall not be present in the water column in detectable concentrations is the most stringent criterion for the regulation of the Group A-organochlorine pesticides (OPs). Since the effluent constitutes San Joaquin River water having been used as once through cooling water, the Organochlorine pesticides were analyzed in the receiving water on samples taken in 2001 and 2002. The results were non-detect. Although, these constituents are listed under the California 303(d) list as pollutants causing impairment in the Sacramento-San Joaquin Delta, and an effluent limitation for Group A-organochlorine pesticides is required according to the SIP, this Order does not include an effluent limitation for OPs because of the site-specific results of non-detect.

Mercury

Mercury was based on the maximum San Joaquin River concentrations analyzed using a "clean technique" USEPA Method 1631. Background concentrations of Mercury in the San Joaquin River ranged from 0.0032 µg/l to 0.0265 µg/l from samples collected in 2001 and 2002. Mercury was also detected in the Contra Costa Canal water with a concentration of 0.00258 µg/l from samples taken in 2001. The current USEPA's ambient water quality criterion (expressed as dissolved concentrations) for continuous concentration of mercury is 0.77 µg/l (4-day average, chronic criteria), and the CTR (expressed as total recoverable) concentration for the human health protection for consumption of water and aquatic organisms is 0.050 µg/l. Mercury is listed under the California 303(d) list as a pollutant causing impairment in the Sacramento-San Joaquin Delta. This listing is based partly on elevated levels of mercury in fish tissue. Because the Sacramento-San Joaquin Delta has been listed as an impaired water body for mercury based on fish tissue impairment, the discharge must not cause or contribute to increased mercury levels in fish tissue. However, because Gaylord's intake water is also its receiving water, and there are no other sources of mercury introduced by the discharger, the concentrations and mass loading of mercury in the effluent are the same concentrations and mass loading in the receiving water and therefore this Order does not include an effluent limitation for mercury.

No Reasonable Potential

There were several constituents which were detected in the effluent that do not pose a reasonable potential to cause an exceedance of a water quality standard and effluent limits were not included in the proposed Order:

Antimony

Antimony effluent concentration is based on the maximum San Joaquin River concentrations. The available maximum background concentration for antimony at the San Joaquin River is 0.13 µg/l. The USEPA and state primary MCL for antimony is 6 µg/l (total recoverable). The CTR water quality criterion for antimony for Human Health protection for consumption of water and aquatic organisms is 14 µg/l. Since the effluent and receiving water concentrations are lower than the most stringent water quality criteria of 6 µg/l, then there is no reasonable potential and an effluent limitation for antimony is not necessary.

Arsenic

Arsenic effluent concentration is based on the maximum San Joaquin River concentrations. The available maximum background concentration for arsenic at the San Joaquin River is 6.0 µg/l. The USEPA primary MCL for arsenic is 10 µg/l (total recoverable). The site-specific Basin Plan objective is also set at 10 µg/l, but as dissolved concentration, but since the conversion factor is 1, then it also translates into a total recoverable concentration of 10 µg/l. The CTR chronic and acute freshwater criteria for total arsenic concentrations are 150 µg/l and 340 µg/l, respectively. Since the effluent and receiving water concentrations are lower than the most stringent water quality criteria of 10 µg/l, then there is no reasonable potential and an effluent limitation for arsenic is not necessary.

Cadmium

Cadmium effluent concentration is based on the maximum San Joaquin River concentrations. The available maximum background concentration for cadmium at the San Joaquin River is 0.07 µg/l. The USEPA and state primary MCL for cadmium is 5 µg/l (total recoverable). The CTR chronic and acute freshwater criteria for total cadmium concentrations (using conversion factors of 0.944 and 0.979) based on worst case receiving water hardness of 43 mg/l are 1.3 µg/l and 1.7 µg/l, respectively. The CTR chronic and acute saltwater criteria for total cadmium concentrations (using conversion factor of 0.994 for both chronic and acute) are 9.3 µg/l and 43 µg/l, respectively. Since the effluent and receiving water concentrations are lower than the most stringent CTR water quality criteria of 1.3 µg/l, then there is no reasonable potential and an effluent limitation for cadmium is not necessary.

Chromium III

Chromium III effluent concentration is based on the maximum San Joaquin River concentrations. The available maximum background concentration for chromium III at the San Joaquin River is 3.5 µg/l. The CTR chronic and acute freshwater criteria for total chromium III concentrations based on a worst case receiving water hardness of 43 mg/l are 104 µg/l and 870 µg/l, respectively. Since the effluent

and receiving water concentrations are lower that the CTR criteria then there is no reasonable potential and an effluent limitation for chromium III is not necessary.

Nickel

Nickel effluent concentration is based on the maximum San Joaquin River concentrations. The available maximum background concentration for nickel at the San Joaquin River is 6.52 µg/l. The USEPA primary MCL for nickel is 100 µg/l (total recoverable). The CTR chronic and acute freshwater criteria for total nickel concentrations (using conversion factors of 0.997 and 0.998) based on worst case receiving water hardness of 43 mg/l are 26 µg/l and 230 µg/l, respectively. The CTR chronic and acute saltwater criteria for total nickel concentrations (using conversion factor of 0.990 for both chronic and acute) are 8.3 µg/l and 74.7 µg/l, respectively. Since the effluent and receiving water concentrations are lower than the most stringent water quality criteria of 8.3 µg/l, then there is no reasonable potential and an effluent limitation for nickel is not necessary.

Silver

Silver effluent concentration is based on the maximum San Joaquin River concentrations. The available maximum background concentration for silver at the San Joaquin River is 0.35 µg/l. The site-specific Basin Plan objective for silver is 10 µg/l, but as dissolved concentration, but since the conversion factor is 1, then it also translates into a total recoverable concentration of 10 µg/l. The CTR acute freshwater criterion for total silver (using a conversion factor of 0.85) based on worst case receiving water hardness of 43 mg/l is 0.81 µg/l. The CTR acute saltwater criterion for total silver (using conversion factor of 0.85) is 1.9 µg/l. Since the effluent and receiving water concentrations are lower than the most stringent CTR water quality criterion of 0.81 µg/l, then there is no reasonable potential and an effluent limitation for silver is not necessary.

Thallium

Thallium effluent concentration is based on the maximum San Joaquin River concentrations. The maximum background concentration for thallium at the San Joaquin River is 0.06 µg/l. The CTR water quality criterion for antimony for Human Health protection for consumption of water and aquatic organisms is 1.7 µg/l. Since the effluent and receiving water concentrations are lower than the most stringent CTR water quality criterion of 1.7 µg/l, then there is no reasonable potential and an effluent limitation for thallium is not necessary.

Zinc

Zinc effluent concentration is based on the maximum San Joaquin River concentrations. The maximum background concentration for total zinc at the San Joaquin River SFRMP Station BG30 was 9.4 µg/l. However, receiving water samples taken by the discharger between 1998 and 2001 resulted in a higher background concentration for total zinc of 25 µg/l. The CTR Water Quality Criteria for zinc expressed as total recoverable concentrations (using USEPA recommended conversion factors of 0.978 for acute and 0.986 for chronic) for the protection of freshwater aquatic life for acute and chronic scenarios are 59 µg/l and 59 µg/l respectively based on the worst case receiving water hardness of 43

mg/l as $CaCO_3$. The CTR Water Quality Criteria for zinc expressed as total recoverable concentrations (using USEPA recommended conversion factor of 0.946) for the protection of saltwater aquatic life for acute and chronic scenarios are 95 µg/l and 86 µg/l respectively. Based on available data, the effluent, which is San Joaquin River water does not have a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for both saltwater and freshwater species, freshwater criteria being the most stringent. Therefore, this Order does not include an effluent limitation for Zinc.

Fluoranthene

Fluoranthene effluent concentration is based on the maximum San Joaquin River concentrations. The maximum background concentration for fluoranthene at the San Joaquin River is 0.18 µg/l. The CTR water quality criterion for fluoranthene for Human Health protection for consumption of water and aquatic organisms is 300 µg/l. Since the effluent and receiving water concentrations are lower than the most stringent CTR water quality criterion of 300 µg/l, then there is no reasonable potential and an effluent limitation for fluoranthene is not necessary.

Phenanthrene

Phenanthrene effluent concentration is based on the maximum San Joaquin River concentrations. The maximum background concentration for phenanthrene at the San Joaquin River is 0.14 µg/l. There is no CTR water quality criteria established for phenanthrene. Since at times the San Joaquin River may include saltwater species, then, in order to implement the Basin Plan narrative toxicity objective, the only applicable criteria is USEPA National Recommended ambient water quality criteria for saltwater aquatic life protection Toxicity information (lowest observed effect level) for acute of 300 µg/l. Since the effluent and receiving water concentrations are lower than this criterion of 300 µg/l, then there is no reasonable potential and an effluent limitation for fluoranthene is not necessary.

Pyrene

Pyrene effluent concentration is based on the maximum San Joaquin River concentrations. The maximum background concentration for pyrene at the San Joaquin River is 0.09 µg/l. The CTR water quality criterion for pyrene for Human Health protection for consumption of water and aquatic organisms is 960 µg/l. Since the effluent and receiving water concentrations are lower than the most stringent CTR water quality criterion of 960 µg/l, then there is no reasonable potential and an effluent limitation for pyrene is not necessary.

Ammonia

Ammonia effluent concentration is based on the maximum San Joaquin River concentrations. The maximum background concentration for ammonia at the San Joaquin River is 0.26 mg/l. The USEPA has published revised ambient water quality criteria for Ammonia (1999 Ammonia Update), superseding all previous USEPA recommended freshwater criteria for ammonia. The 1999 Ammonia Update pertains only to fresh waters. The new criteria incorporates revisions where the acute criterion (1-hour average) for ammonia is now dependent on pH and fish species and the chronic criterion (30-day average) is dependent on pH and temperature, and at temperatures lower than 15^{o}C is also

dependent on fish species. The worst-case scenarios would be when the pH of the receiving water is 8.5 and the temperature is 30°C. Under these conditions, the USEPA's ambient water quality criteria for ammonia are 2.14 mg/l (Salmonids Present) and 3.20 mg/l (Salmonids Absent) as a 1-hour average (acute) and 0.401 mg/l as a 30-day average (chronic). Since the effluent and receiving water concentrations are lower that the ambient water quality criteria, then there is no reasonable potential and an effluent limitation for ammonia is not necessary.

Barium

Barium effluent concentration is based on the maximum San Joaquin River concentrations. The maximum background concentration for barium at the San Joaquin River is 47.2 µg/l. The most stringent criterion is the site-specific Basin Plan water quality objective of 100 µg/l. Since both the effluent and receiving water concentrations are lower than the Basin Plan objective, then there is no reasonable potential and an effluent limitation for barium is not necessary.

Boron

Boron effluent concentration is based on the maximum San Joaquin River concentrations. The maximum background concentration for boron at the San Joaquin River is 400 µg/l based on one sample. The recommended concentration to protect the agricultural beneficial use is 750 µg/l. This is a recommended long term goal, and taken that into consideration, based on the information available the effluent and receiving water concentration is lower than the agricultural water quality goal, therefore, there is no reasonable potential and an effluent limitation for boron is not necessary.

Cobalt

Cobalt effluent concentration is based on the maximum San Joaquin River concentrations. The maximum background concentration for cobalt at the San Joaquin River is 0.11 µg/l based on one sample. The recommended concentration to protect the agricultural beneficial use is 50 µg/l. This is a recommended long term goal, and taken that into consideration, based on the information available the effluent and receiving water concentration is lower than the agricultural water quality goal, therefore, there is no reasonable potential and an effluent limitation for cobalt is not necessary

Fluoride

Fluoride effluent concentration is based on the maximum San Joaquin River concentrations. The maximum background concentration for fluoride at the San Joaquin River is 300 µg/l. The most stringent criterion is the Agricultural Water quality goal for fluoride of 1000 µg/l. Since the effluent and receiving water concentrations are lower than this criteria, then there is no reasonable potential and an effluent limitation for fluoride is not necessary.

Nitrate

Nitrate effluent concentration is based on the maximum San Joaquin River concentrations. The maximum background concentration for nitrate at the San Joaquin River is 0.5 mg/l. The most stringent criteria are the State and USEPA primary MCL for nitrate as Nitrogen of 10 mg/l. Since the effluent and receiving water concentrations did not exceed this criterion, then there is no reasonable potential to exceed the drinking water MCL and therefore no effluent limitation for nitrate is necessary.

Sulfate

Sulfate effluent concentration is based on the maximum San Joaquin River concentrations. The maximum background concentration for sulfate at the San Joaquin River is 110 mg/l. The most stringent criteria are the State and USEPA secondary MCL for sulfate of 250 mg/l. Since the effluent and receiving water concentrations are lower than this criterion, then there is no reasonable potential to exceed the drinking water MCL and therefore no effluent limitation for sulfate is necessary.

Stormwater

Federal Regulations for storm water discharges were promulgated by the U.S. Environmental Protection Agency on 19 November 1990. The regulations of 40 CFR Parts 122, 123, and 124 require specific categories of industrial activities, which discharge storm water associated with industrial activity to obtain an NPDES permit and to implement Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology to control pollutants in industrial storm water discharges

The Gaylord Container Corporation Antioch Paper and Pulp Mill is covered under the General Storm Water Permit, Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001 for *Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities*. The Discharger has implemented a storm water pollution prevention plan and sampling/monitoring program for the facility.

RDJ: